

#11

SEQUENCE LISTING



<110> May, Gregory D.
Clendennen, Stephanie K.
Mason, Hugh S.
Lim, Miguel A. Gomez
Arntzen, Charles J.

<120> DNA Regulatory Elements Associated with Fruit Development

<130> 031998-007

<140> US 09/892,635

<141> 2001-06-28

<150> US 09/160,351

<151> 1998-09-25

<150> US 60/060,062

<151> 1997-09-25

<160> 45

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1186

<212> DNA

<213> Musa acuminata

<220>

<221> CDS

<222> (55)...(1026)

<400> 1

tttggttggtg cctaacagag agagagagac agaccgatag cctcctcatt cact atg 57
Met
1

gcg atc cga tgc cca gct tgc ctg ctg tta ttt gcg ttc ctg atg ctt 105
Ala Ile Arg Ser Pro Ala Ser Leu Leu Phe Ala Phe Leu Met Leu
5 10 15

gcg ctc acg gga aga ctg cag gcc cgg cgc agc tca tgc att ggc gtc 153
Ala Leu Thr Gly Arg Leu Gln Ala Arg Arg Ser Ser Cys Ile Gly Val
20 25 30

tac tgg gga caa aac acc gac gag gga agc tta gca gat gct tgt gcc 201
Tyr Trp Gly Gln Asn Thr Asp Glu Gly Ser Leu Ala Asp Ala Cys Ala
35 40 45

aca ggc aac tac gaa tac gtg aac atc gcc acc ctt ttc aag ttt ggc 249
Thr Gly Asn Tyr Glu Tyr Val Asn Ile Ala Thr Leu Phe Lys Phe Gly
50 55 60 65

atg ggc caa act cca gag atc aac ctc gcc ggc cac tgt gac cct cgg 297
Met Gly Gln Thr Pro Glu Ile Asn Leu Ala Gly His Cys Asp Pro Arg
70 75 80

```

aac aac ggc tgc gcg cgc ttg agc agc gaa atc cag tcc tgc cag gag 345
Asn Asn Gly Cys Ala Arg Leu Ser Ser Glu Ile Gln Ser Cys Gln Glu
      85                      90                      95

cgt ggc gtc aag gtg atg ctc tcc atc gga ggt ggc ggg tct tat ggc 393
Arg Gly Val Lys Val Met Leu Ser Ile Gly Gly Gly Gly Ser Tyr Gly
      100                      105                      110

ctg agt tcc acc gaa gac gcc aag gac gta gcg tca tac ctc tgg cac 441
Leu Ser Ser Thr Glu Asp Ala Lys Asp Val Ala Ser Tyr Leu Trp His
      115                      120                      125

agt ttc ttg ggt ggt tct gct gct cgc tac tcg aga ccc ctc ggg gat 489
Ser Phe Leu Gly Gly Ser Ala Ala Arg Tyr Ser Arg Pro Leu Gly Asp
      130                      135                      140                      145

gcg gtt ctg gat ggc ata gac ttc aac atc gcc gga ggg agc aca gaa 537
Ala Val Leu Asp Gly Ile Asp Phe Asn Ile Ala Gly Gly Ser Thr Glu
      150                      155                      160

cac tat gat gaa ctt gcc gct ttc ctc aag gcc tac aac gag cag gag 585
His Tyr Asp Glu Leu Ala Ala Phe Leu Lys Ala Tyr Asn Glu Gln Glu
      165                      170                      175

gcc gga acg aag aaa gtt cac ttg agt gct cgt ccg cag tgt cct ttc 633
Ala Gly Thr Lys Lys Val His Leu Ser Ala Arg Pro Gln Cys Pro Phe
      180                      185                      190

ccg gat tac tgg ctt ggc aac gca ctc aga aca gat ctc ttc gac ttc 681
Pro Asp Tyr Trp Leu Gly Asn Ala Leu Arg Thr Asp Leu Phe Asp Phe
      195                      200                      205

gtg tgg gtg cag ttc ttc aac aac cct tcg tgc cat ttc tcc cag aac 729
Val Trp Val Gln Phe Phe Asn Asn Pro Ser Cys His Phe Ser Gln Asn
      210                      215                      220                      225

gct atc aat ctt gca aat gcg ttc aac aat tgg gtc atg tcc atc cct 777
Ala Ile Asn Leu Ala Asn Ala Phe Asn Asn Trp Val Met Ser Ile Pro
      230                      235                      240

gcg caa aag ctg ttc ctt ggg ctt cct gct gct cct gag gct gct cca 825
Ala Gln Lys Leu Phe Leu Gly Leu Pro Ala Ala Pro Glu Ala Ala Pro
      245                      250                      255

act ggt ggc tac att cca ccc cat gat ctc ata tct aaa gtt ctt ccg 873
Thr Gly Gly Tyr Ile Pro Pro His Asp Leu Ile Ser Lys Val Leu Pro
      260                      265                      270

atc cta aag gat tcc gac aag tac gca gga atc atg ctg tgg act aga 921
Ile Leu Lys Asp Ser Asp Lys Tyr Ala Gly Ile Met Leu Trp Thr Arg
      275                      280                      285

tac cac gac aga aac tcc ggc tac agt tct caa gtc aag tcc cac gtg 969
Tyr His Asp Arg Asn Ser Gly Tyr Ser Ser Gln Val Lys Ser His Val
      290                      295                      300                      305

tgt cca gcg cgt cgg ttc tcc aac atc tta tct atg ccg gtg aag tct 1017
Cys Pro Ala Arg Arg Phe Ser Asn Ile Leu Ser Met Pro Val Lys Ser

```

310

315

320

tcc aag taa acctgaacgg cgtagatgat cggtggtcga aaactccgat
 Ser Lys *

1066

catcatgggt ccccatccgt atccgtgcgt tgctacgtta tgggtgtttcc cttgtatgtt 1126
 ggtctttttca ataataataat aagggggttag ttttacgttt ccaaaaaaaaa aaaaaaaaaa 1186

<210> 2

<211> 323

<212> PRT

<213> Musa acuminata

<400> 2

Met Ala Ile Arg Ser Pro Ala Ser Leu Leu Leu Phe Ala Phe Leu Met
 1 5 10 15
 Leu Ala Leu Thr Gly Arg Leu Gln Ala Arg Arg Ser Ser Cys Ile Gly
 20 25 30
 Val Tyr Trp Gly Gln Asn Thr Asp Glu Gly Ser Leu Ala Asp Ala Cys
 35 40 45
 Ala Thr Gly Asn Tyr Glu Tyr Val Asn Ile Ala Thr Leu Phe Lys Phe
 50 55 60
 Gly Met Gly Gln Thr Pro Glu Ile Asn Leu Ala Gly His Cys Asp Pro
 65 70 75 80
 Arg Asn Asn Gly Cys Ala Arg Leu Ser Ser Glu Ile Gln Ser Cys Gln
 85 90 95
 Glu Arg Gly Val Lys Val Met Leu Ser Ile Gly Gly Gly Gly Ser Tyr
 100 105 110
 Gly Leu Ser Ser Thr Glu Asp Ala Lys Asp Val Ala Ser Tyr Leu Trp
 115 120 125
 His Ser Phe Leu Gly Gly Ser Ala Ala Arg Tyr Ser Arg Pro Leu Gly
 130 135 140
 Asp Ala Val Leu Asp Gly Ile Asp Phe Asn Ile Ala Gly Gly Ser Thr
 145 150 155 160
 Glu His Tyr Asp Glu Leu Ala Ala Phe Leu Lys Ala Tyr Asn Glu Gln
 165 170 175
 Glu Ala Gly Thr Lys Lys Val His Leu Ser Ala Arg Pro Gln Cys Pro
 180 185 190
 Phe Pro Asp Tyr Trp Leu Gly Asn Ala Leu Arg Thr Asp Leu Phe Asp
 195 200 205
 Phe Val Trp Val Gln Phe Phe Asn Asn Pro Ser Cys His Phe Ser Gln
 210 215 220
 Asn Ala Ile Asn Leu Ala Asn Ala Phe Asn Asn Trp Val Met Ser Ile
 225 230 235 240
 Pro Ala Gln Lys Leu Phe Leu Gly Leu Pro Ala Ala Pro Glu Ala Ala
 245 250 255
 Pro Thr Gly Gly Tyr Ile Pro Pro His Asp Leu Ile Ser Lys Val Leu
 260 265 270
 Pro Ile Leu Lys Asp Ser Asp Lys Tyr Ala Gly Ile Met Leu Trp Thr
 275 280 285
 Arg Tyr His Asp Arg Asn Ser Gly Tyr Ser Ser Gln Val Lys Ser His
 290 295 300
 Val Cys Pro Ala Arg Arg Phe Ser Asn Ile Leu Ser Met Pro Val Lys
 305 310 315 320
 Ser Ser Lys

<210> 3
 <211> 90
 <212> PRT
 <213> Musa acuminata

<400> 3
 Met Ala Ile Arg Ser Pro Ala Ser Leu Leu Leu Phe Ala Phe Leu Met
 1 5 10 15
 Leu Ala Leu Thr Gly Arg Leu Gln Ala Arg Arg Ser Ser Cys Ile Gly
 20 25 30
 Val Tyr Trp Gly Gln Asn Thr Asp Glu Gly Ser Leu Ser Asp Lys Tyr
 35 40 45
 Ala Gly Ile Met Leu Trp Thr Arg Tyr His Asp Arg Asn Ser Gly Tyr
 50 55 60
 Ser Ser Gln Val Lys Ser His Val Cys Pro Ala Arg Arg Phe Ser Asn
 65 70 75 80
 Ile Leu Ser Met Pro Val Lys Ser Ser Lys
 85 90

<210> 4
 <211> 67
 <212> PRT
 <213> Musa acuminata

<400> 4
 Met Glu Lys Cys Phe Asn Ile Ile Pro Ser Leu Leu Leu Ile Ser Leu
 1 5 10 15
 Leu Ile Lys Ser Ser Asn Ala Ala Gly Ile Ala Val Tyr Trp Gly Gln
 20 25 30
 Asn Gly Asn Glu Gly Ser Leu Ser Pro Lys Tyr Gly Gly Val Met Ile
 35 40 45
 Trp Asp Arg Phe Asn Asp Ala Gln Ser Gly Tyr Ser Asn Ala Ile Lys
 50 55 60
 Gly Ser Val
 65

<210> 5
 <211> 69
 <212> PRT
 <213> Musa acuminata

<400> 5
 Met Ala Arg Thr Pro Gln Ser Thr Pro Leu Leu Ile Ser Leu Ser Val
 1 5 10 15
 Leu Ala Leu Ile Lys Thr Ser Tyr Ala Gly Gly Ile Ala Ile Tyr Trp
 20 25 30
 Gly Gln Asn Gly Asn Glu Gly Thr Leu Ser Pro Lys Tyr Gly Gly Val
 35 40 45
 Met Ile Trp Ser Lys Phe Tyr Asp Asp Gln Ser Gly Tyr Ser Asn Ser
 50 55 60
 Ile Lys Gly Ser Val
 65

<210> 6
 <211> 73
 <212> PRT

<213> Musa acuminata

<400> 6

```

Met Thr Asn Met Thr Leu Arg Lys His Val Ile Tyr Pro Leu Leu Phe
 1          5          10          15
Ile Ser Cys Ser Leu Ser Lys Pro Ser Asp Ala Ser Arg Gly Gly Ile
          20          25          30
Ala Ile Tyr Trp Gly Gln Asn Gly Asn Glu Gly Asn Leu Ser Arg Lys
          35          40          45
Tyr Gly Gly Val Met Ile Trp Ser Lys Phe Trp Asp Asp Lys Asn Gly
          50          55          60
Tyr Ser Asn Ser Ile Leu Ala Ser Val
65          70

```

<210> 7

<211> 64

<212> PRT

<213> Musa acuminata

<400> 7

```

Met Ile Lys Tyr Ser Pro Leu Leu Thr Ala Ser Val Ser Phe Leu Lys
 1          5          10          15
Ala Leu Lys Leu Glu Ala Gly Asp Ile Val Ile Tyr Trp Gly Gln Asn
          20          25          30
Gly Asn Glu Gly Asn Leu Ser Pro Lys Tyr Gly Gly Val Met Ile Trp
          35          40          45
Ser Lys Phe Tyr Asp Asn Gly Tyr Ser Asn Ala Ile Leu Ala Asn Val
          50          55          60

```

<210> 8

<211> 67

<212> PRT

<213> Musa acuminata

<400> 8

```

Met Ala Ala Lys Ile Val Ser Val Leu Phe Leu Ile Ser Ser Leu Ile
 1          5          10          15
Phe Ala Ser Phe Glu Ser Ser His Gly Gly Gln Ile Val Ile Tyr Trp
          20          25          30
Gly Gln Asn Gly Asn Glu Gly Asn Leu Ser Ala Lys Tyr Gly Gly Val
          35          40          45
Met Ile Trp Ser Lys Ala Tyr Asp Asn Gly Tyr Ser Asn Ala Ile Leu
          50          55          60
Ala Ser Val
65

```

<210> 9

<211> 496

<212> DNA

<213> Musa acuminata

<220>

<221> misc_feature

<222> 163, 387, 471

<223> n = A,T,C or G

<400> 9
 ggcacgagta catcctctgc ttcttcgagc cttttcgctt tccttcctcg tctaaccatg 60
 tcgacctgcg gcaactgcga ctgcgttgac aagagccagt gcgtgaagaa gggaaacagc 120
 tacgggtatcg atattgttga gaccgagaag agctacgtcg acnagggtgat cgttgccgca 180
 gaagctgccg agcatgacgg caagtgcgaag tgcggcgccg cctgcgcctg caccgactgc 240
 aagtgtggca actgagaagc acttgtgtca ctaccactaa ataaaagttt gcaatgcata 300
 aaaaaacaaa gaacaaaaaa aaaaaaggaa gaagaagaag gtgtggctat gtactctaata 360
 aattcgggca ggctgatagg ttgtaanatg ggataacgca gtatcatctg tgttatctct 420
 gtcctgtgtt tacaactctc ctatctatcc tagtccatga aatattatta ntattaaaaa 480
 aaaaaaaaaa aaaaaa 496

<210> 10
 <211> 416
 <212> DNA
 <213> Musa acuminata

<400> 10
 ggcacgaggg caccgaggttg cctctcgaca tgcgcacctg cggcaactgc gactgcgctg 60
 acaagagcca gtgcgtgaag aagggaaaca gctacgctac cgagactggt gcgaccgaga 120
 agagcttctt ggatgggtga tgcgatgcc cagcagccgc cgagacggag ggagactgca 180
 agtgtggtcc ttcttcgccc tgtgttgact gccaatgtgg ccagtgcacg cttcttagct 240
 agtaatgaca atatataata tgttcgagta aataacttgg ggcttgcag gctaactggt 300
 tatcagtggt tcatgatgtc agatgggata gggttgtgtc taccttgtct acatctgtac 360
 tgttatcata catgataaat aaagaattat tagtattaaa aaaaaaaaaa aaaaaa 416

<210> 11
 <211> 65
 <212> PRT
 <213> Musa acuminata

<400> 11
 Met Ser Thr Cys Gly Asn Cys Asp Cys Val Asp Lys Ser Gln Cys Val
 1 5 10 15
 Lys Lys Gly Asn Ser Tyr Gly Ile Asp Ile Val Glu Thr Glu Lys Ser
 20 25 30
 Tyr Val Asp Glu Val Ile Val Ala Ala Glu Ala Ala Glu His Asp Gly
 35 40 45
 Lys Cys Lys Cys Gly Ala Ala Cys Ala Cys Thr Asp Cys Lys Cys Gly
 50 55 60
 Asn
 65

<210> 12
 <211> 67
 <212> PRT
 <213> Musa acuminata

<400> 12
 Met Ser Thr Cys Gly Asn Cys Asp Cys Ala Asp Lys Ser Gln Cys Val
 1 5 10 15
 Lys Lys Gly Asn Ser Tyr Ala Thr Glu Thr Val Ala Thr Glu Lys Ser
 20 25 30
 Phe Leu Asp Gly Val Val Asp Ala Pro Ala Ala Ala Glu Thr Glu Gly
 35 40 45
 Asp Cys Lys Cys Gly Pro Ser Cys Ala Cys Val Asp Cys Lys Gln Cys
 50 55 60
 Gly Asn Gln
 65

<210> 13
 <211> 63
 <212> PRT
 <213> Musa acuminata

<400> 13
 Met Ser Asp Lys Cys Gly Asn Cys Asp Cys Ala Asp Ser Ser Gln Cys
 1 5 10 15
 Val Lys Lys Gly Asn Ser Thr Glu Thr Val Ala Thr Asp Lys Ser Phe
 20 25 30
 Ile Glu Asp Val Val Met Gly Val Pro Ala Ala Glu Ser Gly Gly Asp
 35 40 45
 Cys Lys Cys Gly Thr Ser Cys Pro Cys Val Asn Cys Thr Cys Asp
 50 55 60

<210> 14
 <211> 66
 <212> PRT
 <213> Musa acuminata

<400> 14
 Met Ser Gly Lys Cys Asp Asn Cys Asp Cys Ala Asp Ser Thr Gln Cys
 1 5 10 15
 Val Lys Lys Gly Asn Ser Tyr Asp Leu Val Thr Val Ala Thr Asp Asn
 20 25 30
 Arg Ser Met Glu Thr Val Phe Met Asp Val Pro Ala Ala Glu Ser Gly
 35 40 45
 Gly Asp Cys Lys Cys Gly Thr Gly Cys Ser Cys Val Ser Cys Thr Cys
 50 55 60
 Asp His
 65

<210> 15
 <211> 65
 <212> PRT
 <213> Musa acuminata

<400> 15
 Met Ser Asp Lys Cys Asp Asn Cys Asp Cys Ala Asp Ser Thr Gln Cys
 1 5 10 15
 Val Lys Lys Gly Ser Ser Tyr Thr Ala Val Thr Ile Ala Thr Asp Asn
 20 25 30
 Arg Ile Met Thr Val Val Met Asp Val Pro Ala Ala Glu Asn Gly Gly
 35 40 45
 Asp Cys Lys Cys Gly Pro Ser Cys Ser Cys Val Asn Cys Thr Cys Asp
 50 55 60
 His
 65

<210> 16
 <211> 1423
 <212> DNA
 <213> Musa acuminata

<400> 16

```

taagcttccg  tgccaaagcg  gtctgccttt  ctacgccgca  tcgggaaggg  gaaacacaaa  60
aaaaagatca  ggaagatgat  gctgacacga  gaggtggaag  gaagtttacc  gctctcccat  120
aatagagatt  cctttggatg  cttctcccg  tgggtgtgtg  gagcacagac  actgaatgtg  180
gtccgctcgtt  ccaatccctc  acgtaatcgg  gccgtctccg  gctataaata  accccccccg  240
accgagcgaa  cgcttctaac  caggaacgca  taccacacca  caatttgttg  agccgttgtg  300
cttggtgcct  ctgcacatgt  cgacctgcgg  caactgcgac  tgcgctgaca  agagccagt  360
cgtgtaagtt  ctcttctcc  ccgccctccc  acctctttgt  gatacacaca  acaaatatgc  420
atgaggggtg  agtttaatat  tgaccacaag  aacttgggtt  tgctcctgca  ggaagaaggg  480
aaacagctac  gctaccgaga  ctggtgcgac  cgagaagagg  tattattgat  ctctctcatg  540
ggtgaggggtg  tgggagtatc  ttgtccgcac  gatgaaattc  cacaacatga  tgactcagca  600
aacaagatcc  ttttattctt  gagaaaacaa  ctaaaagaag  aaaaaaaaaa  cagagaatat  660
atctgcgatt  atttcttttt  gagtgatgtg  gaattccatg  ccatagctta  aaactatttt  720
cgaagtcgaa  gcatattaca  tacctcttga  tgaattagta  aggatgatta  aaagtaagcc  780
atctaaagca  gagtaactac  ttacgtttct  ttcatgtcat  ctctgtctta  cagcttcttg  840
gatggtgtag  tcgatcccc  agcagccgcc  gaaacggagg  gagactgcaa  gtgtggctct  900
tcctgcgcct  gtgttgactg  ccaatgtggc  cagtgcagac  ttcttagcta  gtaatgacaa  960
tatataatat  gttcgagtaa  ataacttggg  gcttgcatgg  ctaatcgttt  atcagtgtgt  1020
catgatgtca  gatgggatag  ggttgtgtct  acctgttcta  catctgtact  gttatcatac  1080
atgataaata  aagaattatt  agtattaatt  tggtttcagg  tgataactac  tgctcctttc  1140
aaccgaatca  ctactgttac  gtgaacaaac  atgtaatagt  agtgattcag  taggacgact  1200
tttgtctatt  taacttttgc  tttgggttgc  aaaaatatgt  tcttctgat  tcacgaaaga  1260
gggtgtccat  gagcattcgg  ctattgagcg  atgttggatg  aggcctcaaa  gggaagaatt  1320
tatgcttagg  actctgagtt  cgatggttgc  caccgacctc  ctcaagtacc  aagacacata  1380
cccttcttct  cgaggcctat  ccaacatcgc  tcgtatcgtc  gac  1423

```

<210> 17

<211> 3559

<212> DNA

<213> Musa acuminata

<220>

<221> misc_feature

<222> (1)...(3559)

<223> Complement

<400> 17

```

attggaccca  cgcggtggcg  gccgctctag  aatagtggat  ccccggggct  gcaggaattc  60
taaaatctat  tcttttttat  tttattaatt  aaattaaatt  aattttttat  tgtttgggat  120
ttagcctaac  attcccgagc  tcctctatct  ttggagattg  aatacaaaat  tcttctccca  180
tctaaagtta  ttttaatttt  gaagatcata  tggctgacat  ataaagcaaa  tatgtcaaa  240
gtagttttca  ccgtccacac  gatagaaaca  acaaagtagg  gtaattaaat  ttgttccgct  300
atcacaaagc  acaacaccaa  aatattcact  taatcaaate  ctactataa  ataataatcc  360
ttcaaactgc  aactctaaac  aatgaggttc  tctctccag  caacgttctt  ttctgaacac  420
aaagatttgc  cacaacctta  gctgactttt  aatatcagtg  gtctctggac  aagattcttg  480
ttgcacgcta  aaattcgaac  taaaatcaga  tcgagttata  tccgtaattg  agattgatga  540
ccgaaccgat  ttttaagata  ctctccgtaa  cttgggatta  ataaaattaa  taaggtaggt  600
atcagttatt  ttagatgata  aaaatcttga  tagtttgaat  ctcatcttag  tcacttattt  660
ttaattaaaa  ataataataa  taatttgatt  aatctgattg  gaaaaaaaaa  aagttctcta  720
gccattaaag  tctggttaga  catagaaatt  aatgaattaa  actgtaacca  taaggttgaa  780
tttttgaaca  catgtacagg  aaaattgatt  tgttgaagtc  atgtctaate  aatgcagcag  840
tttacagctt  ggtgtgactt  ccacaactat  aggcttatcc  cctgggagtc  gaggatcaaa  900
cgtgtgagca  atattctccc  ttcttgatga  taaactatga  tggctgttag  gtgtgtaagc  960
actccaaatt  ttccatcaat  gtggaattgg  aagagttcac  gcactgacgg  accaactcgg  1020
tttgttcagt  ctggtgacta  ctgctgagca  tgagaaaatg  gttgatggtg  gcaagttgca  1080
aatgtacctg  acctcatctt  aaagactgtt  gattagatgc  atgcattgat  tacgtctctt  1140
ccatctttta  ctcttttgat  cgatgcacgc  tcttaattag  gtcaaggaca  tgtgatgaca  1200
agaatctatt  ccactatttg  tgacccatat  tccaaatgga  acaagacttc  caagtcctca  1260
tccagaattt  tggaagggat  aaggatggtg  gggagaaaga  acaagctgtt  gcctttcgtt  1320
ttcttctatc  aggaagccaa  gagtttcaag  aggagggtag  acctgagggg  atgatgcctg  1380

```



```

tgtcgaaacc tctatataag gagtaggaac acagcatggt gatgaacaca aaccatttca 1440
gcggggaaga agagaaccct tttgacagag ttgttgcac ggcaacaaaa gcttctctct 1500
ccataaaagg ctttgccctg ctggtttcag tccttgtagc agttccaaca agttctctct 1560
ctctctctct ctctctctct ctctctctct ctctctctct ctcataattat acatttgatt 1620
gttagctctt acaaatttat tagggttttt ataagagttc aagcttttgg taatttaatc 1680
atggtagggt atattttcaa aacttgtaac ctgcattttg tctctttatt tcatgcaata 1740
ttcttttctt tgattggctt acgtcattta cttgagttag ctcataatgta actgtttaaa 1800
tatttgggat tatttggttaa cggataaaaa aaattaattg attttagata caatgctata 1860
tatatatata tatatatata tatatatata tatatatata tatatatata ttataggtag 1920
aaacttggtg taattcacac gtatgttcgc tttatctgaa taaaatgagt agtcctttca 1980
atgcagatta gtcttactcc acttgacgat gcacgaccaa ttgcttgat catcttccat 2040
agagcaccac agctaagtct ccgatgtggt ctactgcagg agtgcaatcg attggtgtct 2100
gctacggaat gctcggcaac aatcttcccc cgcccagcga ggtggtcagt ctctacaaat 2160
ccaacaacat cgcgaggatg agactctacg atccaaacca ggccgcccctg caagccctca 2220
ggaactccaa catccaagtc ctggtggatg tccccgatc cgacgtgcag tccactggcct 2280
ccaatccttc ggccgcccgc gactggatcc ggaggaacgt cgtcgcctac tggcccagcg 2340
tctcctttcg atacatagct gtcggaaacg agctgatccc cggatcggat ctggcgagct 2400
acatcctccc cgccatgcgc aacatctaca atgctttgtc ctggctggc ctgcaaaacc 2460
agatcaaggt ctgcaccgcg gtcgacacgg gcgtctcctg cactcctac cctccctccg 2520
ccggcgctt ctccctccgc gcccaggcgt acctgagccc catcgtgcag ttcttggcga 2580
gtaacggagc gccgtcctg gtcaatgtgt acccttattt tagctacacc ggcaaccg 2640
gacagatctc gctgccctac gccctgttca cggcctccgg cgtcgtcgtg caggatggc 2700
gattcagcta tcagaacctg ttcgacgcca tcgtcgacgc ggtcttcgcg gcgctggaga 2760
gagtgggagg ggcaaacgtg gcggtgggtg tgcgagagag cgggtggccg tcggcgggcg 2820
gaggagccga agcagacacc agcaacgcgc agacgtacaa ccagaacttg atcaggcatg 2880
ttggcgagg aacgccgagg agaccaggga aggagatcga ggcatacata ttcgagatgt 2940
tcaacgagaa ccagaaggct ggagggatcg agcagaactt tggcctgttt tatcccaaca 3000
agcagcccgt ataccaaata agcttttaga aactaacttg taaggttgat gaatcatctc 3060
ctacctacct acctacctac gaataaaaac tgaaataaag caccaaaata aaggggagaat 3120
tctgatcttg gagaaagtgt aatcatgatg atatataaca aacacccctc ttactcatt 3180
atcagtatgt tacaagtttc ttgaaacttg aacggatcac aatttggacc tacaagtatt 3240
ttgggtcata attatttcat tgaactatat attcaaaaaa agatgtgttt ggagtgttta 3300
atacagtatg acttcagttt gcaagattac ctcttcagcg tcagcttcag catgccaaaa 3360
aaccatcatc tgctatggg catgttttac accttgatgg tgctacatca tcatcattca 3420
tgtttcattt taggtctcgt gctctttata tagatcacat aaaagtttgg atcgcttcaa 3480
gtttctaggt tacattgtat gcagcacttt gagcctactg aacattgtga ctgcctttta 3540
gaacattgga ctgcaggaa 3559

```

<210> 18

<211> 3559

<212> DNA

<213> Musa acuminata

<400> 18

```

taacctgggt ggcgccaccg cgccgagatc ttatcaccta gggggcccga cgtccttaag 60
attttagata agaaaaaata aaataattaa ttttaatttaa ttaaaaaata acaaaccata 120
aatcgatttg taagggcctg aggagataaa aacctctaac ttatgtttta agaagagggg 180
agatttcaat aaaattaaaa cttctagtat accgactgta tatttcgttt atacagtttc 240
catcaaaagt ggcagggtgt ctatctttgt tgtttcatcc cattaattta aacaaggcag 300
tagtgtttcg tgtgtgtggt ttataagtga attagtttag gagtgatatt tattattagg 360
aagtttgacg ttgagatttg ttactccaag agagagggtc gttgcaagaa aagacttggt 420
tttctaaacg gtgttgaat cgactgaaaa ttatagtcac aggcattaac tctaactact 540
aacgtgcgat ttaagcttg attttagtct agctcaatat aggcattaac attccatcca 600
ggcttggtca aaattctcat gagaggcatt gaaccctaatt tattttaatt agtagaatac 660
tagtcaataa aatctactat ttttagaact atcaaaacta gagtagaatac agtgaataaa 720
aattaatttt tattattatt attaaactaa ttagactaac cttttttttt ttcaagagat 780
cggtaatttc agaccatcct gtatctttta ttacttaatt tgacattggg attccaactt 840
aaaaacttgt gtacatgtcc ttttaactaa acaacttcag tacagattag ttacgtcgtc 900
aatgtcga ccacactgaa ggtgttgata tccgaatagg ggaccctcag ctctagttt

```

```

gcacactcgt tataagaggg aaggactact atttgatact accgacaatc cacacattcg 960
tgaggtttaa aaggtagtta caccttaacc ttctcaagtg cgtgactgcc tggttgagcc 1020
aaacaagtca gaccactgat gacgactcgt actcttttac caactacat cgttcaacgt 1080
ttacatggac tggagtagaa tttctgacaa ctaatctacg tacgtaacta atgcagagaa 1140
ggtagaaatt gagaaaacta gctacgtagc agaattaatc cagttcctgt acactactgt 1200
tcttagataa ggtgataaac actgggtata aggtttacct tgttctgaag gttcaggagt 1260
aggtctttaa accttcccta ttcctaccac ccctctttct tgttcgacaa cggaaagcaa 1320
aagaagatag tcttccggtt ctcaaagttc tctcccatc tggactcccc tactacggac 1380
acagcttttg agatatattc ctcatccttg tgtcgtacaa ctacttgtgt ttggtaaagt 1440
cgcccccttct tctcttggga aaactgtctc aacaacagta ccgttgtttt cgaagagaga 1500
ggtattttcc gaaacggaac gaccaaagtc aggaacatcg tcaaggttgt tcaagagaga 1560
gagagagaga gagagagaga gagagagaga gagagagaga gagtataata tgtaaaactaa 1620
caatcgagaa tgtttaaata atccccaaaa tattctcaag ttcgaaaacc attaaattag 1680
taccatccaa tataaaagtt ttgaacattg gacgtaaaac agagaaataa agtacgttat 1740
aagaaaagga actaaccgaa tgcagtaaat gaactcaatc gagtatacat tgacaaattt 1800
ataaacccta ataaccaatt gcctattttt tttaattaac taaaatctat gttacgatat 1860
atatatatat atatatatat atatatatat atatatatat aatatccatc 1920
tttgaaccat attaagtggt catacaagcg aaatagactt attttactca tcaggaaagt 1980
tacgtctaata cagaatgagg tgaacgtcta cgtgctgggt aaacgaacta gtagaaggta 2040
tctcgtgggt tgcattcaga ggctacacaa gatgacgtcc tcacgttagc taaccacaga 2100
cgatgcctta cgagccgttg ttagaagggt gcgggtcgct ccaccagtca gagatgttta 2160
ggttggtgta gcgtccctac tctgagatgc taggtttggt ccggcgggac gttcgggagt 2220
ccttgagggt gtaggttcag gacaacctac agggggctag gctgcacgtc agtgaccgga 2280
ggttaggaag ccggcggccg ctgacctagg cctccttgca gcagcggatg accgggtcgc 2340
agaggaaagc tatgtatcga cagcctttgc tcgactaggg gcctagccta gaccgcgtca 2400
tgtaggaggg gcggtacgcg ttgtagatgt tacgaaacag gagccgaccg gacgttttgg 2460
tctagttcca gagctggcgc cagctgtgcc cgcaggagcc gtgcaggatg ggagggaggc 2520
ggccgcggaa gaggaggcgg cgggtccgca tggactcggg gtagcacgtc aagaaccgct 2580
cattgcctcg cggcgaggac cagttacaca tgggaataaa atcgatgtgg ccgttgggccc 2640
ctgtctagag cgacgggatg cgggacaagt gccggaggcc gcagcagcac gtcctaccgc 2700
ctaagtcgat agtcttgac agctgcggt agcagctgcg ccagaagcgc cgcgacctct 2760
ctcaccctcc ccgcttgac ccgccaccac acagcctctc gccaccggc agccgcccgc 2820
ctcctcggct tcgctcgtgg tcgttgcgcg tctgcatgtt ggtcttgaac tagtccgtac 2880
aaccgcctcc ttgcggctcc tctggtccct tctctagct ccgtatgtat aagctctaca 2940
agttgctctt ggtcttccga cctccctagc tcgtcttgaa accggacaaa atagggttgt 3000
tcgtcgggca tatggtttat tcgaaaatct ttgattgaac attccaacta cttagtagag 3060
gatggatgga tggatggatg cttattttgt actttatttc gtggttttat ttccctctta 3120
agactagaa ctctttcaac ttagtactac tatatatgtt ttgtggggag aaatgagtaa 3180
tagtcataca atgttcaaag aactttgaac ttgcctagtg ttaaacctgg atgttcataa 3240
aaccacgtat taataaagta acttgatata taagtttttt tctacacaaa cctcacgaat 3300
tatgtcatac tgaagtcaaa cgttctaata gagaagtcgc agtcgaagtc gtacggtttt 3360
ttggtagtag acgatacccc gtacaaaatg tggaaactacc acgatgtagt agtagtaagt 3420
acaaagtaaa atccagagca cgagaaatat atctagtgt ttttcaaacc tagcgaagtt 3480
caaagatcca atgtaacata cgtcgtgaaa ctcggatgac ttgtaacact gacggaaaat 3540
cttgtaacct gacgtcctt 3559

```

<210> 19

<211> 1131

<212> PRT

<213> Musa acuminata

<400> 19

```

Ile Gly Pro Thr Arg Trp Arg Pro Leu Asn Ser Gly Ser Pro Gly Leu
1          5          10          15
Gln Glu Phe Asn Leu Phe Phe Phe Ile Leu Leu Ile Lys Leu Asn Phe
20          25          30
Phe Ile Val Trp Tyr Leu Ala His Ser Arg Thr Pro Leu Phe Leu Glu
35          40          45
Ile Glu Tyr Lys Ile Leu Leu Pro Ser Lys Val Ile Leu Ile Leu Lys

```

50	55	60
Ile Ile Trp Leu Thr Tyr Lys Ala Asn Met Ser Lys Val Val Phe Thr		
65	70	75
Val His Thr Ile Glu Thr Thr Lys Gly Asn Ile Cys Ser Val Ile Thr		80
	85	90
Lys His Asn Thr Lys Ile Phe Thr Ser Asn Pro His Tyr Lys Ser Phe		95
	100	105
Lys Leu Gln Leu Thr Met Arg Phe Ser Leu Pro Ala Thr Phe Phe Ser		110
	115	120
Glu His Lys Asp Leu Pro Gln Pro Leu Thr Phe Asn Ile Ser Gly Leu		125
	130	135
Trp Thr Arg Phe Leu Leu His Ala Lys Ile Arg Thr Lys Ile Arg Ser		140
145	150	155
Ser Tyr Ile Arg Asn Asp Pro Asn Arg Phe Glu Tyr Ser Pro Leu Gly		160
	165	170
Ile Asn Lys Ile Asn Lys Val Gly Ile Ser Tyr Phe Arg Lys Ser Phe		175
	180	185
Glu Ser His Leu Ser His Leu Phe Leu Ile Lys Asn Asn Asn Asn		190
	195	200
Leu Ile Asn Leu Ile Gly Lys Lys Lys Ser Ser Leu Ala Ile Lys Val		205
	210	215
Trp Asp Ile Glu Ile Asn Glu Leu Asn Cys Asn His Lys Val Glu Phe		220
225	230	235
Leu Asn Thr Cys Thr Gly Lys Leu Ile Cys Ser His Val Ser Met Gln		240
	245	250
Gln Phe Thr Ala Trp Cys Asp Phe His Asn Tyr Arg Leu Ile Pro Trp		255
	260	265
Glu Ser Arg Ile Lys Arg Val Ser Asn Ile Leu Pro Ser Thr Met Met		270
	275	280
Ala Val Arg Cys Val Ser Thr Pro Asn Phe Pro Ser Met Trp Asn Trp		285
	290	295
Lys Ser Ser Arg Thr Asp Gly Pro Thr Arg Phe Val Gln Ser Gly Asp		300
305	310	315
Tyr Cys Ala Glu Asn Gly Trp Gln Val Ala Asn Val Pro Asp Leu Ile		320
	325	330
Leu Lys Thr Val Asp Met His Ala Leu Ile Thr Ser Leu Pro Ser Leu		335
	340	345
Thr Leu Leu Ile Asp Ala Ser Ser Leu Gly Gln Gly His Val Met Thr		350
	355	360
Arg Ile Tyr Ser Thr Ile Cys Asp Pro Tyr Ser Lys Trp Asn Lys Thr		365
	370	375
Ser Lys Ser Ser Ser Arg Ile Leu Glu Gly Ile Arg Met Val Gly Arg		380
385	390	395
Lys Asn Lys Leu Leu Pro Phe Val Phe Phe Tyr Gln Glu Ala Lys Ser		400
	405	410
Phe Lys Arg Arg Val Asp Leu Arg Gly Cys Leu Cys Arg Asn Leu Tyr		415
	420	425
Ile Arg Ser Arg Asn Thr Ala Cys Thr Gln Thr Ile Ser Ala Gly Lys		430
	435	440
Lys Arg Thr Leu Leu Thr Glu Leu Leu Ser Trp Gln Gln Lys Leu Leu		445
	450	455
Ser Pro Lys Ala Leu Pro Cys Trp Phe Gln Ser Leu Gln Phe Gln Gln		460
465	470	475
Val Leu Ser Leu Ser Leu Ser Leu Ser Leu Ser Leu Ser Leu Ser Leu		480
	485	490
Ser His Ile Ile His Leu Ile Val Ser Ser Tyr Lys Phe Ile Arg Val		495
	500	505
Phe Ile Arg Val Gln Ala Phe Gly Asn Leu Ile Met Val Gly Tyr Ile		510
	515	520
		525

Phe Lys Thr Cys Asn Leu His Phe Val Ser Leu Phe His Ala Ile Phe
 530 535 540
 Phe Ser Leu Ile Gly Leu Arg His Leu Leu Glu Leu Ala His Met Leu
 545 550 555 560
 Phe Lys Tyr Leu Gly Leu Leu Val Asn Gly Lys Lys Leu Ile Asp Phe
 565 570 575
 Arg Tyr Asn Ala Ile Tyr Ile Tyr Ile Tyr Ile Tyr Ile Tyr
 580 585 590
 Ile Tyr Ile Tyr Ile Tyr Tyr Arg Lys Leu Gly Ile Ile His Thr Tyr
 595 600 605
 Val Arg Phe Ile Ile Lys Val Val Leu Ser Met Gln Ile Ser Leu Thr
 610 615 620
 Pro Leu Ala Asp Ala Arg Pro Ile Cys Leu Ile Ile Phe His Arg Ala
 625 630 635 640
 Pro Gln Leu Ser Leu Arg Cys Val Leu Leu Gln Glu Cys Asn Arg Leu
 645 650 655
 Val Ser Ala Thr Glu Cys Ser Ala Thr Ile Phe Pro Arg Pro Ala Arg
 660 665 670
 Trp Ser Val Ser Thr Asn Pro Thr Thr Ser Arg Gly Asp Ser Thr Ile
 675 680 685
 Gln Thr Arg Pro Pro Cys Lys Pro Ser Gly Thr Pro Thr Ser Lys Ser
 690 695 700
 Cys Trp Met Ser Pro Asp Pro Thr Cys Ser His Trp Pro Pro Ile Leu
 705 710 715 720
 Arg Pro Pro Ala Thr Gly Ser Gly Gly Thr Ser Ser Pro Thr Gly Pro
 725 730 735
 Ala Ser Pro Phe Asp Thr Leu Ser Glu Thr Ser Ser Pro Asp Arg Ile
 740 745 750
 Trp Arg Ser Thr Ser Ser Pro Pro Cys Ala Thr Ser Thr Met Leu Cys
 755 760 765
 Pro Arg Leu Ala Cys Lys Thr Arg Ser Arg Ser Arg Pro Arg Ser Thr
 770 775 780
 Arg Ala Ser Ser Ala Arg Pro Thr Leu Pro Pro Pro Ala Pro Ser Pro
 785 790 795 800
 Pro Pro Pro Arg Arg Thr Ala Pro Ser Cys Ser Ser Trp Arg Val Thr
 805 810 815
 Glu Arg Arg Ser Trp Ser Met Cys Thr Leu Ile Leu Ala Thr Pro Ala
 820 825 830
 Thr Arg Asp Arg Ser Arg Cys Pro Thr Pro Cys Ser Arg Pro Pro Ala
 835 840 845
 Ser Ser Cys Arg Met Gly Asp Ser Ala Ile Arg Thr Cys Ser Thr Pro
 850 855 860
 Ser Ser Thr Arg Ser Ser Arg Arg Trp Arg Glu Trp Glu Gly Arg Thr
 865 870 875 880
 Trp Arg Trp Trp Cys Arg Arg Ala Gly Gly Arg Arg Arg Ala Glu Glu
 885 890 895
 Pro Lys Arg Ala Pro Ala Thr Arg Arg Arg Thr Thr Arg Thr Ser Gly
 900 905 910
 Met Leu Ala Glu Glu Arg Arg Gly Asp Gln Gly Arg Arg Ser Arg His
 915 920 925
 Thr Tyr Ser Arg Cys Ser Thr Arg Thr Arg Arg Leu Glu Gly Ser Ser
 930 935 940
 Arg Thr Leu Ala Cys Phe Ile Pro Thr Ser Ser Pro Tyr Thr Lys Ala
 945 950 955 960
 Phe Arg Asn Leu Val Arg Leu Met Asn His Leu Leu Pro Thr Tyr Leu
 965 970 975
 Pro Thr Asn Lys Thr Asn Lys Ala Pro Lys Arg Glu Asn Ser Asp Leu
 980 985 990
 Gly Glu Ser Ile Met Met Ile Tyr Asn Lys His Pro Ser Leu Leu Ile

```

          995                1000                1005
Ile Ser Met Leu Gln Val Ser Asn Leu Asn Gly Ser Gln Phe Gly Pro
  1010                1015                1020
Thr Ser Ile Leu Gly His Asn Tyr Phe Ile Glu Leu Tyr Ile Gln Lys
1025                1030                1035                1040
Lys Met Cys Leu Glu Cys Leu Ile Gln Tyr Asp Phe Ser Leu Gln Asp
          1045                1050                1055
Tyr Leu Phe Ser Val Ser Phe Ser Met Pro Lys Asn His His Leu Leu
          1060                1065                1070
Trp Gly Met Phe Tyr Thr Leu Met Val Leu His His His His Ser Cys
          1075                1080                1085
Phe Ile Leu Gly Leu Val Leu Phe Ile Ile Thr Lys Phe Gly Ser Leu
          1090                1095                1100
Gln Val Ser Arg Leu His Cys Met Gln His Phe Glu Pro Thr Glu His
1105                1110                1115                1120
Cys Asp Cys Leu Leu Glu His Trp Thr Ala Gly
          1125                1130

```

<210> 20
 <211> 1126
 <212> PRT
 <213> Musa acuminata

```

<400> 20
Leu Asp Pro Arg Gly Gly Gly Arg Ser Arg Ile Val Asp Pro Pro Gly
  1          5          10          15
Cys Arg Asn Ser Lys Ile Tyr Ser Phe Leu Phe Tyr Leu Asn Asn Phe
          20          25          30
Leu Leu Phe Gly Ile Pro Asn Ile Pro Gly Leu Leu Tyr Phe Trp Arg
          35          40          45
Leu Asn Thr Lys Phe Phe Ser His Leu Lys Leu Phe Phe Arg Ser Tyr
          50          55          60
Gly His Ile Lys Gln Ile Cys Gln Arg Phe Ser Pro Ser Thr Arg Lys
65          70          75          80
Gln Gln Ser Arg Val Ile Lys Phe Val Pro Ser Ser Gln Ser Thr Thr
          85          90          95
Pro Lys Tyr Ser Leu Asn Gln Ile Leu Thr Ile Asn Asn Asn Pro Ser
          100          105          110
Asn Cys Asn Ser Lys Gln Gly Ser Leu Ser Gln Gln Arg Ser Phe Leu
          115          120          125
Asn Thr Lys Ile Cys His Asn Leu Ser Leu Leu Ile Ser Val Val Ser
130          135          140
Gly Gln Asp Ser Cys Cys Thr Leu Lys Phe Glu Leu Lys Ser Asp Arg
145          150          155          160
Val Ile Ser Val Ile Glu Ile Asp Asp Arg Thr Asp Phe Lys Ser Thr
          165          170          175
Leu Arg Asn Leu Gly Leu Ile Lys Leu Ile Arg Val Ser Val Ile Leu
          180          185          190
Asp Asp Lys Asn Leu Asp Ser Leu Asn Leu Ile Leu Val Thr Tyr Phe
          195          200          205
Leu Lys Ile Ile Ile Ile Ile Leu Ile Leu Glu Lys Lys Lys Val Leu
210          215          220
Pro Leu Lys Ser Gly Arg Thr Lys Leu Met Asn Thr Val Thr Ile Arg
225          230          235          240
Leu Asn Phe Thr His Val Gln Glu Asn Phe Val Glu Val Met Ser Asn
          245          250          255
Gln Cys Ser Ser Leu Gln Leu Gly Val Thr Ser Thr Thr Ile Gly Leu
260          265          270

```

Ser Pro Gly Ser Arg Gly Ser Asn Val Ala Ile Phe Ser Leu Pro Asp
 275 280 285
 Asp Lys Leu Trp Leu Leu Gly Val Ala Leu Gln Ile Phe His Gln Cys
 290 295 300
 Gly Ile Gly Arg Val His Ala Leu Thr Asp Gln Leu Gly Leu Phe Ser
 305 310 315 320
 Leu Val Thr Thr Ala Glu His Glu Lys Met Val Asp Gly Ser Lys Leu
 325 330 335
 Gln Met Tyr Leu Thr Ser Ser Arg Leu Leu Ile Arg Cys Met His Leu
 340 345 350
 Arg Leu Phe His Leu Leu Phe Ser Met His Arg Leu Asn Val Lys Asp
 355 360 365
 Met Gln Glu Ser Ile Pro Leu Phe Val Thr His Ile Pro Asn Gly Thr
 370 375 380
 Arg Leu Pro Ser Pro His Pro Glu Phe Trp Lys Gly Gly Trp Trp Gly
 385 390 395 400
 Glu Arg Thr Ser Cys Cys Leu Ser Phe Ser Ser Ile Arg Lys Pro Arg
 405 410 415
 Val Ser Arg Gly Gly Thr Gly Asp Asp Ala Cys Val Glu Thr Ser Ile
 420 425 430
 Gly Val Gly Thr Gln His Val Asp Glu His Lys Pro Phe Gln Arg Gly
 435 440 445
 Arg Arg Glu Pro Phe Gln Ser Cys Cys His Gly Asn Lys Ser Phe Ser
 450 455 460
 Leu His Lys Arg Leu Cys Leu Ala Gly Phe Ser Pro Cys Ser Ser Ser
 465 470 475 480
 Asn Lys Phe Ser Leu Ser Leu Ser Leu Ser Leu Ser Leu Ser Leu Ser
 485 490 495
 Leu Ser Leu Ile Leu Tyr Ile Leu Leu Ala Leu Thr Asn Leu Leu Gly
 500 505 510
 Phe Leu Glu Phe Lys Leu Leu Val Ile Ser Trp Val Ile Phe Ser Lys
 515 520 525
 Leu Val Thr Cys Ile Leu Ser Leu Tyr Phe Met Gln Tyr Ser Phe Pro
 530 535 540
 Leu Ala Tyr Val Ile Tyr Leu Ser Leu Ile Cys Asn Cys Leu Asn Ile
 545 550 555 560
 Trp Asp Tyr Trp Leu Thr Asp Lys Lys Asn Leu Ile Leu Asp Thr Met
 565 570 575
 Leu Tyr Ile Tyr Ile Tyr Ile Tyr Ile Tyr Ile Tyr Ile Tyr Ile Tyr
 580 585 590
 Ile Tyr Ile Ile Ile Gly Arg Asn Leu Val Phe Thr Arg Met Phe Ala
 595 600 605
 Leu Ser Glu Asn Glu Ser Phe Gln Cys Arg Leu Val Leu Leu His Leu
 610 615 620
 Gln Met His Asp Gln Phe Ala Ser Ser Ser Ile Glu His His Ser Val
 625 630 635 640
 Ser Asp Val Phe Tyr Cys Arg Ser Ala Ile Asp Trp Cys Leu Leu Arg
 645 650 655
 Asn Ala Arg Gln Gln Ser Ser Pro Ala Gln Arg Gly Gly Gln Ser Leu
 660 665 670
 Gln Ile Gln Gln His Arg Glu Asp Glu Thr Leu Arg Ser Lys Pro Gly
 675 680 685
 Arg Pro Ala Ser Pro Gln Glu Leu Gln His Pro Ser Pro Val Gly Cys
 690 695 700
 Pro Pro Ile Arg Arg Ala Val Thr Gly Leu Gln Ser Phe Gly Arg Arg
 705 710 715 720
 Arg Leu Asp Pro Glu Arg Arg Arg Leu Leu Ala Gln Arg Leu Leu
 725 730 735
 Ser Ile His Ser Cys Arg Lys Arg Ala Asp Pro Arg Ile Gly Ser Gly

740 745 750
 Ala Val His Pro Pro Arg His Ala Gln His Leu Gln Cys Phe Val Leu
 755 760 765
 Gly Trp Pro Ala Lys Pro Asp Gln Gly Leu Asp Arg Gly Arg His Gly
 770 775 780
 Arg Pro Arg His Val Leu Pro Ser Leu Arg Arg Arg Leu Leu Leu Arg
 785 790 795 800
 Arg Pro Gly Val Pro Glu Pro His Arg Ala Val Leu Gly Glu Arg Ser
 805 810 815
 Ala Ala Pro Gly Gln Cys Val Pro Leu Phe Leu His Arg Gln Pro Gly
 820 825 830
 Thr Asp Leu Ala Ala Leu Arg Pro Val His Gly Leu Arg Arg Arg Arg
 835 840 845
 Ala Gly Trp Ala Ile Gln Leu Ser Glu Pro Val Arg Arg His Arg Arg
 850 855 860
 Arg Gly Leu Arg Gly Ala Gly Glu Ser Gly Arg Gly Glu Arg Gly Gly
 865 870 875 880
 Gly Gly Val Gly Glu Arg Val Ala Val Gly Gly Arg Arg Ser Arg Ser
 885 890 895
 Glu His Gln Gln Arg Ala Asp Val Gln Pro Glu Leu Asp Gln Ala Cys
 900 905 910
 Trp Arg Arg Asn Ala Glu Glu Thr Arg Glu Gly Asp Arg Gly Ile His
 915 920 925
 Ile Arg Asp Val Gln Arg Glu Pro Glu Gly Trp Arg Asp Arg Ala Glu
 930 935 940
 Leu Trp Pro Val Leu Ser Gln Gln Ala Ala Arg Ile Pro Asn Leu Leu
 945 950 955 960
 Glu Thr Asn Leu Gly Ile Ile Ser Tyr Leu Pro Thr Tyr Leu Arg Ile
 965 970 975
 Lys His Glu Ile Lys His Gln Asn Lys Gly Arg Ile Leu Ile Leu Glu
 980 985 990
 Lys Val Glu Ser Tyr Ile Thr Asn Thr Pro Leu Tyr Ser Leu Ser Val
 995 1000 1005
 Cys Tyr Lys Phe Leu Glu Thr Thr Asp His Asn Leu Asp Leu Gln Val
 1010 1015 1020
 Phe Trp Val Ile Ile Ile Ser Leu Asn Tyr Ile Phe Lys Lys Arg Cys
 1025 1030 1035 1040
 Val Trp Ser Ala Tyr Ser Met Thr Ser Val Cys Lys Ile Thr Ser Ser
 1045 1050 1055
 Ala Ser Ala Ser Ala Cys Gln Lys Thr Ile Ile Cys Tyr Gly Ala Cys
 1060 1065 1070
 Phe Thr Pro Cys Tyr Ile Ile Ile Ile His Val Ser Phe Val Ser Cys
 1075 1080 1085
 Ser Leu Tyr Arg Ser His Lys Ser Leu Asp Arg Phe Lys Phe Leu Gly
 1090 1095 1100
 Tyr Ile Val Cys Ser Thr Leu Ser Leu Leu Asn Ile Val Thr Ala Phe
 1105 1110 1115 1120
 Asn Ile Gly Leu Gln Glu
 1125

<210> 21
 <211> 1121
 <212> PRT
 <213> Musa acuminata

<400> 21
 Asn Trp Thr His Ala Val Ala Ala Ala Leu Glu Trp Ile Pro Arg Ala
 1 5 10 15

Ala Gly Ile Leu Lys Ser Ile Leu Phe Tyr Phe Ile Asn Ile Lys Ile
 20 25 30
 Phe Tyr Cys Leu Val Phe Ser Leu Thr Phe Pro Asp Ser Ser Ile Phe
 35 40 45
 Gly Asp Ile Gln Asn Ser Ser Pro Ile Ser Tyr Phe Asn Phe Glu Asp
 50 55 60
 His Met Ala Asp Ile Ser Lys Tyr Val Lys Gly Ser Phe His Arg Pro
 65 70 75 80
 His Asp Arg Asn Asn Lys Val Gly Leu Asn Leu Phe Arg His His Lys
 85 90 95
 Ala Gln His Gln Asn Ile His Leu Ile Lys Ser Ser Leu Ile Ile Ile
 100 105 110
 Leu Gln Thr Ala Thr Leu Asn Asn Glu Val Leu Ser Pro Ser Asn Val
 115 120 125
 Leu Phe Thr Gln Arg Phe Ala Thr Thr Leu Ala Asp Phe Tyr Gln Trp
 130 135 140
 Ser Leu Asp Lys Ile Leu Val Ala Arg Asn Ser Asn Asn Gln Ile Glu
 145 150 155 160
 Leu Tyr Pro Leu Arg Leu Met Thr Glu Pro Ile Leu Arg Val Leu Ser
 165 170 175
 Val Thr Trp Asp Asn Gly Arg Tyr Gln Leu Phe Met Ile Lys Ile Leu
 180 185 190
 Ile Val Ile Ser Ser Ser Leu Ile Phe Asn Lys Phe Asp Ser Asp Trp
 195 200 205
 Lys Lys Lys Lys Phe Ser Ser His Ser Leu Val Gly His Arg Asn Ile
 210 215 220
 Lys Leu Pro Gly Ile Phe Glu His Met Tyr Arg Lys Ile Asp Leu Leu
 225 230 235 240
 Lys Ser Cys Leu Ile Asn Ala Ala Val Tyr Ser Leu Val Leu Pro Gln
 245 250 255
 Leu Ala Tyr Pro Leu Gly Val Glu Asp Gln Thr Cys Glu Gln Tyr Ser
 260 265 270
 Pro Phe Leu Met Ile Asn Tyr Asp Gly Cys Val Cys Lys His Ser Lys
 275 280 285
 Phe Ser Ile Asn Val Glu Leu Glu Glu Phe Thr His Arg Thr Asn Ser
 290 295 300
 Val Cys Ser Val Trp Leu Leu Ser Met Arg Lys Trp Leu Met Val
 305 310 315 320
 Ala Ser Cys Lys Cys Thr Pro His Leu Lys Asp Cys Leu Asp Ala Cys
 325 330 335
 Ile Asp Tyr Val Ser Ser Ile Phe Asn Ser Phe Asp Arg Cys Ile Val
 340 345 350
 Leu Ile Arg Ser Arg Thr Cys Asp Lys Asn Leu Phe His Tyr Leu
 355 360 365
 Pro Ile Phe Gln Met Glu Gln Asp Phe Gln Val Leu Ile Gln Asn Phe
 370 375 380
 Gly Arg Asp Lys Asp Gly Gly Glu Lys Glu Gln Ala Val Ala Phe Arg
 385 390 395 400
 Phe Leu Leu Ser Gly Ser Gln Glu Phe Gln Glu Glu Gly Arg Pro Glu
 405 410 415
 Gly Met Met Pro Val Ser Lys Pro Leu Tyr Lys Glu Glu His Ser Met
 420 425 430
 Leu Met Asn Thr Asn His Phe Ser Gly Glu Glu Glu Asn Pro Phe Asp
 435 440 445
 Arg Val Val Val Met Ala Thr Lys Ala Ser Leu Ser Ile Lys Gly Phe
 450 455 460
 Ala Leu Leu Val Ser Val Leu Val Ala Val Pro Thr Ser Ser Leu Ser
 465 470 475 480
 Leu Ser Leu Ser Leu Ser Leu Ser Leu Ser Leu Ser Tyr Tyr

				485					490					495			
Thr	Phe	Asp	Cys	Leu	Leu	Gln	Ile	Tyr	Gly	Phe	Tyr	Lys	Ser	Ser	Ser		
			500					505					510				
Phe	Trp	Phe	Asn	His	Gly	Arg	Leu	Tyr	Phe	Gln	Asn	Leu	Pro	Ala	Phe		
		515					520					525					
Cys	Leu	Phe	Ile	Ser	Cys	Asn	Ile	Leu	Phe	Leu	Asp	Trp	Leu	Thr	Ser		
		530				535					540						
Phe	Thr	Val	Ser	Ser	Tyr	Val	Thr	Val	Ile	Phe	Gly	Ile	Ile	Gly	Arg		
545					550					555					560		
Ile	Lys	Lys	Ile	Asn	Phe	Ile	Gln	Cys	Tyr	Ile	Tyr	Ile	Tyr	Ile	Tyr		
				565					570					575			
Ile	Tyr	Ile	Tyr	Ile	Tyr	Ile	Tyr	Ile	Tyr	Ile	Leu	Val	Glu	Thr	Trp		
			580				585						590				
Tyr	Asn	Ser	His	Val	Cys	Ser	Leu	Tyr	Asn	Lys	Met	Ser	Ser	Pro	Phe		
		595					600					605					
Asn	Ala	Asp	Ser	Tyr	Ser	Thr	Cys	Arg	Cys	Thr	Thr	Asn	Leu	Leu	Asp		
	610					615					620						
His	Leu	Pro	Ser	Thr	Thr	Ala	Lys	Ser	Pro	Met	Cys	Ser	Thr	Ala	Gly		
625					630					635					640		
Val	Gln	Ser	Ile	Gly	Val	Cys	Tyr	Gly	Met	Leu	Gly	Asn	Asn	Leu	Pro		
				645					650					655			
Pro	Pro	Ser	Glu	Val	Val	Ser	Leu	Tyr	Lys	Ser	Asn	Asn	Ile	Ala	Arg		
			660					665					670				
Met	Arg	Leu	Tyr	Asp	Pro	Asn	Gln	Ala	Ala	Leu	Gln	Ala	Leu	Arg	Asn		
		675				680						685					
Ser	Asn	Ile	Gln	Val	Leu	Leu	Asp	Val	Pro	Arg	Ser	Asp	Val	Gln	Ser		
	690					695					700						
Leu	Ala	Ser	Asn	Pro	Ser	Ala	Ala	Gly	Asp	Trp	Ile	Arg	Arg	Asn	Val		
705					710					715					720		
Val	Ala	Tyr	Trp	Pro	Ser	Val	Ser	Phe	Arg	Tyr	Ile	Ala	Val	Gly	Asn		
				725					730					735			
Glu	Leu	Ile	Pro	Gly	Ser	Asp	Leu	Ala	Gln	Tyr	Ile	Leu	Pro	Ala	Met		
			740					745					750				
Arg	Asn	Ile	Tyr	Asn	Ala	Leu	Ser	Ser	Ala	Gly	Leu	Gln	Asn	Gln	Ile		
		755					760						765				
Lys	Val	Ser	Thr	Ala	Val	Asp	Thr	Gly	Val	Leu	Gly	Thr	Ser	Tyr	Pro		
	770					775					780						
Pro	Ser	Ala	Gly	Ala	Phe	Ser	Ser	Ala	Ala	Gln	Ala	Tyr	Leu	Ser	Pro		
785					790					795					800		
Ile	Val	Gln	Phe	Leu	Ala	Ser	Asn	Gly	Ala	Pro	Leu	Leu	Val	Asn	Val		
				805					810					815			
Tyr	Pro	Tyr	Phe	Ser	Tyr	Thr	Gly	Asn	Pro	Gly	Gln	Ile	Ser	Leu	Pro		
			820					825					830				
Tyr	Ala	Leu	Phe	Thr	Ala	Ser	Gly	Val	Val	Val	Gln	Asp	Gly	Arg	Phe		
		835					840					845					
Ser	Tyr	Gln	Asn	Leu	Phe	Asp	Ala	Ile	Val	Asp	Ala	Val	Phe	Ala	Ala		
		850				855					860						
Leu	Glu	Arg	Val	Gly	Gly	Ala	Asn	Val	Ala	Val	Val	Val	Ser	Glu	Ser		
865					870					875					880		
Gly	Trp	Pro	Ser	Ala	Gly	Gly	Gly	Ala	Glu	Ala	Ser	Thr	Ser	Asn	Ala		
				885					890					895			
Gln	Thr	Tyr	Asn	Gln	Asn	Leu	Ile	Arg	His	Val	Gly	Gly	Gly	Thr	Pro		
			900					905					910				
Arg	Arg	Pro	Gly	Lys	Glu	Ile	Glu	Ala	Tyr	Ile	Phe	Glu	Met	Phe	Asn		
		915					920					925					
Glu	Asn	Cys	Lys	Ala	Gly	Gly	Ile	Glu	Gln	Asn	Phe	Gly	Leu	Phe	Tyr		
		930				935					940						
Pro	Asn	Lys	Gln	Pro	Val	Tyr	Gln	Ile	Ser	Phe	Lys	Leu	Thr	Cys	Lys		
945					950					955					960		

```

Val Asp Glu Ser Ser Pro Thr Tyr Leu Pro Thr Tyr Glu Asn Met Lys
          965                      970                      975
Ser Thr Lys Ile Lys Gly Glu Phe Ser Trp Arg Lys Leu Asn His Asp
          980                      985                      990
Asp Ile Gln Thr Pro Leu Phe Thr His Tyr Gln Tyr Val Thr Ser Phe
          995                      1000                     1005
Leu Lys Leu Glu Arg Ile Thr Ile Trp Thr Tyr Lys Tyr Phe Gly Ser
          1010                     1015                     1020
Leu Phe His Thr Ile Tyr Ser Lys Lys Asp Val Phe Gly Val Leu Asn
          1025                     1030                     1035                     1040
Thr Val Leu Gln Phe Ala Arg Leu Pro Leu Gln Arg Gln Leu Gln His
          1045                     1050                     1055
Ala Lys Lys Pro Ser Ser Ala Met Gly His Val Leu His Leu Asp Gly
          1060                     1065                     1070
Ala Thr Ser Ser Ser Phe Met Phe His Phe Arg Ser Arg Ala Leu Tyr
          1075                     1080                     1085
Ile Asp His Ile Lys Val Trp Ile Ala Ser Ser Phe Val Thr Leu Tyr
          1090                     1095                     1100
Ala Ala Leu Ala Tyr Thr Leu Leu Pro Phe Arg Thr Leu Asp Cys Arg
          1105                     1110                     1115                     1120
Lys

```

<210> 22

<211> 7397

<212> DNA

<213> Musa acuminata

<220>

<221> misc_feature

<222> 82, 601, 628, 640, 655, 692, 725, 774, 793, 806, 813, 854,
867, 870, 876, 882, 890, 919, 946, 959, 965, 995, 999, 1002,
1028, 1043, 1054, 1075, 1093, 1515, 2166, 2216, 2265, 2345,
2533, 2870, 2917, 3077, 3337, 3356, 3618, 3627, 3754

<223> n = A,T,C or G

<221> misc_feature

<222> 3810, 3819, 3884, 3893, 4494, 4503, 4524, 4533, 4568, 4574,
4597, 4654, 4724, 4741, 4759, 4852, 5027, 5253, 5546, 5565,
5567, 5575, 5578, 5618, 5619, 5650, 5669, 5672, 5677, 5683,
5694, 5704, 5708, 5732, 5741, 5754, 5758, 5772, 5778

<223> n = A,T,C or G

<221> misc_feature

<222> 5780, 5784, 5788, 5802, 5804, 5808, 5813, 5820, 5824, 5832,
5834, 5836, 5854, 5858, 5863, 5872, 5875, 5889, 5915, 5922,
5950, 5990, 6006, 6011, 6344, 6401, 6416, 6596, 6600, 6608,
6612, 6712, 6748, 6753, 6756, 6762, 6830, 6844, 6847

<223> n = A,T,C or G

<221> misc_feature

<222> 6863, 6910, 6965, 6968, 7070, 7116, 7179, 7291, 7322, 7325,
7345, 7351, 7359, 7387, 7395

<223> n = A,T,C or G

<400> 22

agcgaggtcg actaatgagc tactaacatt aatgtcacag atagtaatag atgagaagcc 60
gtatccaaca cgcaatctgt anacttggtc acaggacttc ttatccaaag actcgcctct 120

```

cgattttccc acattcacct catttggctc ataggaagct tcacagcggg caggaatcca 180
tttctctata taagcaccac ctcccaccca caccaccacc actaccactg ctaaggagga 240
tgaaggcctt gttgttggtc atctttaccc tggcctcgtc gctcggcgcc ttcgccgagc 300
aatgcggaag gcaagccggg ggggctctct gcccgcgcg gctgtgctgt agccagtacg 360
gctggtgcgg taacacggat ccatactgcg gccaggatg ccagagccaa tgcggcggtg 420
gcggcggtag cggcggtggc agcgtggcct cgatcatcag ctctccctc ttcgagcaga 480
tgctgaagca tcgcaacgac gcagcctgcc ccggcaaggg tttctacacg tacaacgcct 540
tcacgcgcgc cgccaactcc ttcagcgggt tcgggacgac cggcgacgac ccaagaagaa 600
naaggagatg gcggctttct tggcgcanac gtctcacgan acgacaggta attcncacat 660
ctcccgaagc tcgtaaaactg tttatgggat anaaaactga atgtttgggg tttggcagggt 720
gggtnggcga cgcgcccgat ggtccgtacg ccttgggtta ctgcttcgtc caanaacaaa 780
acctcatcg gantactgcg tcccanctcc cantggccgt gcgctgcagc aaaaaatact 840
acggccgaag cccntccaaa tttcatngtn agccanattc tnacagtten tcgcccgcgt 900
cgagttcaca acgatgccnt ttctaacgca acaatccgat gtgtnttgcg tgcagcaant 960
acaantacgg gccggccggg agagccatcg gttcngacnt gntcaacaac ccagacctgg 1020
tggccacnga cgcgaccatc tcnttcaaga cggntctgtg gttttggatg actcntcagt 1080
cgcccaagcc gtngtgccac gacgtgataa ccgggagctg gacgccatcc aacgcccagc 1140
aggcgccggg aaggcttccg ggctacggtg tcaccaccaa catcatcaat ggagggttgg 1200
agtgcgggaa aggttacgat gccagggtgg ccgataggat cggcttctac aagagggtact 1260
gcgacttgct ggggtgagc tacggagaca acttggactg ctacaaccag agacctttg 1320
cttctacagc agctacagcc acattctagc ggtgagctat ggagacaact tggagtgtta 1380
caaccagaga ccttttactt agtccgatac tactgtgacg aatccatgta ataacgcaat 1440
aaacgctatt actgagatag cgactccgtg agttgactgt agaagttgcg gaggaagtct 1500
tcaataaaaag cttanctaca tacatggccc acaactatcg ttgaccgtga tcatatgcat 1560
ccatcaaatg tcctcaaatg tcttggagta agtaaatgcg tattcgatcg gtaaaatgaa 1620
gatgttagaa taaataaaaat taattatttt tttataatta taaatatttt aatatatttt 1680
ttaatcttaa agatcctaaa aatctaatta taaggatttt atatatggat tgggatacta 1740
agaatattta attataaaaa ttaatatact ttttaacttt aaagatctaa ttataagtat 1800
tttctatatg gattgggata ttaactcgat ttacttataa aaattttaat ataaaaattt 1860
taaatttaaa aattaaaata ctaaaaatat ctaaatataa cggtaatcat gagatcgaga 1920
acgtgatgat tgagatcatg agatcgaggt tgagagtaaa aaggaaatta cgttaatcat 1980
gggaaaattt gttttgtttg cacggtcgag atggtgaccg tggacaccta acatccacaa 2040
ccggcatgca ataaccatgt tgtcatatgt tagcttgtct catatcttat gaccatgaat 2100
cacatagtct tcacgaatat taattaagcc agcttagcat cacagttttg cacctttgta 2160
ccatanctga agtggtcgta tggcttgacc catcccgagt gtatggtctc ccggancctg 2220
gagcgtgtta acccgaggtc tagttgaggg gcatagacct tgtntctta ggcagagggt 2280
gaagatcact ccttttagcta tccgttgggt gcctatataa aggtcgaaat catgaggggg 2340
attcntaact cgacctattc aatatttgag cttagcaagag ttggagttac gtgtatgagg 2400
ttcgaccccc aatgctgttc ctggggtcgc ttttatacct attcctgcat gtgatcatac 2460
atagtagctt taatcatctt cagtcatcat cgtacgttgg gtgcatgcat tgtctaattt 2520
actcgattca atntcgttcg acactgcttc ctacctacta tgtggcccaa tacatagttg 2580
tattgtctca tacggcctcg agcaaagcgt gtgcagagga actgtgtcaa gtggttggct 2640
ggcctcgggc tcatggcatt gagttggctc gatacaacac atcggcttag ggataccatg 2700
ccgagtctat tgtggtagtt gacatgtcat gtggggtgga tgccaaaata tgctatatca 2760
ttctctccct acaaaggagt tgtgccatag gagaatcgtg gacacggctt gggttctgtg 2820
gtcggctcct gttcgctca gttgggtgga ttacttcac aagttggccn tctgttggct 2880
gggcaaagta cacttggtag ggatggtcga gacaagncca aggaagggtt gctaagactt 2940
ggttttcgac aatcaattgt ttatgaggcg aatggtatcc ctccgttggg gtgtctgctc 3000
gtttcgattt gttgcgatgg attgtttgtt gtaggaggct tggttcgatt gctcttaagt 3060
cgggagaagg tatttgntaa ggagttcaat ttgaccatgt tgaagtgaat aaaaggactt 3120
gccaagaagt ttggctcgac cgtgttaaag ccagagaatg tgtatgtcga ggtctattca 3180
accatgtgga agctagagaa tgcaccaatt gtgaggtttg gcttgctcac gtttaaagca 3240
gaagatata cttgtctaca ggtttgctca accatgtgga agcaatcaa tgcaactgct 3300
atgaggtttg gcttgactta ctcgacaatg gacgctngta agtgagaagg gactanccaa 3360
gacttagttg gcaaggacta gtcgatactt gtcgacaat agatgcctat aggtaatgga 3420
ttgactgaga cttagtcgac aaagactagc tgagacttag tgggcaatgg atgcctataa 3480
gtaagaaagg atggctcgag attaataaag atcaaataat taatataaat ttatcaaaca 3540
cttaatggac gcatataagt gagaaaggac ggatcgagat taataaagat caaataatta 3600
atataagttt atcaaacnct tattaanaca ttggacaaaa gaggtactat gtaatattaa 3660

```

```

aattgggagg cacaaatatt atttccaaat actttttctcc ttaagccctt cgccaccatt 3720
gccatttttaa tctatttttt ctatataatt atnccataac attcgtacat gagatatgac 3780
ataaaccttc gacctgcttt agtaaacaatn ttgattatng tgacaccaga agccataata 3840
ttgcttacct taacatgatg gagatgaact ttgatttggtc caantatcta atnaatggaa 3900
gtggacaagc acgatgacta ggatggctac atgttcatgt gttgactttc caagtaatca 3960
atcaagctgg aatcgaataa gacgattaaa gtagggcgat gaccattaag ttcaatgtca 4020
cgctcatcaa cataattcca acaccgtgca gaaagatctt atcttacatt gacttgccca 4080
tccggccgcc ggcacgcatt ggcggaacg aagggtcagt ctcccaattc acattcaaag 4140
gacgaattca ttttcatcag atgagcactt cagtcctgct tgattatatt ttattattat 4200
tattattatt aattgaatgg taagtttaca gaatatatag atatttttagt ttcaataaaa 4260
tattttaaaa aatgataaag ggagaagggtg gatttgatct taggattttt attgtgagca 4320
ataaaagtct ttagtttagaa cttccaaaat gtgtcaaatg aaccctaata agtgggtttg 4380
gtctatggtt acgatgagat cagtatttgt atataaaaa attatcaact tgatttttat 4440
tttttaaccc ttaataagtg gacatgatat atcataatca aatcatgtga tgtntgatga 4500
gtmataacat atttttttaat aatnaaaatt atnaatagag aaaaaataag attactatcc 4560
cttctatnga tgtnttataa tatttttaatc cttttcnata tagattcacg tagaataaga 4620
aagattataa tcgcatcaaa tcaaatacag aatnaaatca tgcttttgac ttaattcgaa 4680
aaataatctt cctctcttga taatatcctt attgataagc attnttatat atatatatat 4740
ntatatcaac ttctaaaana tattttttaa ttaattaaat ttatcaaaat aaaaagataa 4800
actaaattag ttctgcatca taatgtagta agtgaagaa cttgtgaaat anggatctag 4860
aacactgata gaaaattcca aaccattact agttctactt gatgaaaaca aaaccatata 4920
aaagaatcct cttatatata tatatatata tatactactt tacttattct ttggacgtac 4980
aacacaagtc aggaaaaccga aacaaagggtg gcggaagtt ggcagangct gaagagactt 5040
ttcgtagaag tgaaggagac acacgtctat aagaattgtc atgactatac gctgaagaaa 5100
aagaggggag agagagagaa ggaagcgcca ctgttgaccg gtcttgtcca tgaggaattg 5160
tttgtcgact aatgagcagt acaaacattt gtgtcgacag atggcaacaa atgagaagcg 5220
gtatcccaac acgcaatctg tagccttttg tcnccagact tatccaaaga cttgcctctg 5280
cgatttcctc atgcgcctca tctgttccaa aggaagcttc acagcgggca ggaatccatt 5340
tctctatata agcaccacct cccaccaca ccaccaccac caccaccact gctaaggagg 5400
atgaaggcct tgttgctggt catttttacc ctggcctcgt cgctcggcgc cttcgccgag 5460
caatgcggaa ggcaagccgg gggggctctc tgccccggcg ggctgtgctg tagccagtac 5520
ggctggtgcg gtaacacgga tccatnctgc ggtcaaggat gccanancca atgcncangc 5580
tccacgacct ccccttccac tccgagcggc ggtggcanng ttggctcgat catcatctcc 5640
tccctcttcn agcagatgct gaagcatcnc ancgacncag ccngccccgg caanggcttc 5700
tacnctnca ccgccttcat ctccgcccgc anctccttca ncgggttcgg gacnacncg 5760
gaccactcca cnaataanan gganatcneg gctttcttgg tncngacntc tcncgagacn 5820
acangtaate cntnctctc ccgaggctcg tctncagntt atngatagac anctnaatgc 5880
attgggttng gcacgtgggt ggtccacctg gcccnatggc cnttcgcgtg gggttactgc 5940
ttcgtccagn aacagaaccc tcatcggaact actgcgtcgc cagctcgcan tggccgtgcg 6000
ctgcangcaa naaatactac ggccgaagcc ccatccaaat ctcatccaac tacaactacg 6060
ggccggccgg gaaaaccatc ggctccgacc tgctcaacaa ccagacctg gtggccaccg 6120
acccgaccat ctcttcaag acggctctgt ggttctggat gactcctcag tcgcccagc 6180
cgctcgtgcca cgacgtgata accgggagct ggacgccatc caacgccgac cgggcggccg 6240
gaaggcttcc gggctacggt gtcaccacca acatcatcaa tggaggggtg gagtgcggga 6300
aagggtccga tgccaggggt gcggaatagg aacttggaact gctacaacca nagtccctt acttantccg 6420
tgggggtgag ctacggagac aacttggaact gctacaacca ataaacgcta ctgctgaaat agcgactccg 6480
atactatgtg cgaatccatg taataacgca cttcaataaa agctaagctg aacaagttca 6540
tgagttgatt gtagaagttg cggaggaaat cttcaataaa caaatgtctt ggagtnagtn 6600
tggccctcaa tcatcgttga tcgtcgtcag ttagaataaa taaaattatt tattttttat 6660
aatgcgtntt cnatcggtaa attgaagatg cttaaagatc ctaaaaaatc tnattataag 6720
aattataaat attttaatat atttttttaat cttaaagatc tnaaaattaa tatactttta 6780
gattttatat atggattggg atactaanaa aanttnatta tatatggatn gggatactaa 6840
atcttaagga tcctaaaaaa acataattat aaggattttc tatatggatn aaaatactaa 6900
caanatntaa ttgtaaaaat ttnaatataa aattgttaaa tctaaaaatt aaataactaa 6960
aaatatatan taatcatgat atcgagaatg tggcgcttag atctcgagat cgaggttgag 7020
actanagngg aaattatgtt aatcatggga aattttcttt tgtttccaag acgatgaccg 7080
tggaaccta acatccgcaa tcgggtcatgc aataaccatg ttatcatcan tgaacttgct 7140
gtcgtcatct tacggccaca aatcacagtc ttctancaag gcacgaatat taatgagtc 7200
aacgtagtat ctatattgtt ttacactttt ataccgtant cgaggtgttc gcacgatttg

```

```

gcccatccca agtgcataag atcattgata tgacctctac gttggagcgt gtttaacccga 7260
gatctagttg agggggcata ggtctcattt ntctacgtgg aggttaaaga tcacctttat 7320
tncanccctt gtagattcta aactngaggt ngatctctnt aggagatcgg tctcccttgg 7380
aactctntag gggtncc                                     7397

```

```

<210> 23
<211> 7397
<212> DNA
<213> Musa acuminata

```

```

<220>
<221> misc_feature
<222> 82, 601, 628, 640, 655, 692, 725, 774, 793, 806, 813, 854,
      867, 870, 876, 882, 890, 919, 946, 959, 965, 995, 999, 1002,
      1028, 1043, 1054, 1075, 1093, 1515, 2166, 2216, 2265, 2345,
      2533, 2870, 2917, 3077, 3337, 3356, 3618, 3627, 3754
<223> n = A,T,C or G

```

```

<221> misc_feature
<222> 3810, 3819, 3884, 3893, 4494, 4503, 4524, 4533, 4568, 4574,
      4597, 4654, 4724, 4741, 4759, 4852, 5027, 5253, 5546, 5565,
      5567, 5575, 5578, 5618, 5619, 5650, 5669, 5672, 5677, 5683,
      5694, 5704, 5708, 5732, 5741, 5754, 5758, 5772, 5778
<223> n = A,T,C or G

```

```

<221> misc_feature
<222> 5780, 5784, 5788, 5802, 5804, 5808, 5813, 5820, 5824, 5832,
      5834, 5836, 5854, 5858, 5863, 5872, 5875, 5889, 5915, 5922,
      5950, 5990, 6006, 6011, 6344, 6401, 6416, 6596, 6600, 6608,
      6612, 6712, 6748, 6753, 6756, 6762, 6830, 6844, 6847
<223> n = A,T,C or G

```

```

<221> misc_feature
<222> 6863, 6910, 6965, 6968, 7070, 7116, 7179, 7291, 7322, 7325,
      7345, 7351, 7359, 7387, 7395
<223> n = A,T,C or G

```

```

<400> 23
tcgctccagc tgattactcg atgattgtaa ttacagtgtc tatcattatc tactcttcgg 60
catagggtgg gcgtagagca tntgaaccag tgtcctgaag aataggtttc tgagcggaga 120
cgctaaaggg tgtaagtggg gtaaaccagg tatccttcga agtgtcgccc gtccttaggt 180
aaagagatat attcgtgggt gaggggtgggt gtgggtgggtg tgattgggtga cgattcctcc 240
tacttccgga acaacaacca gtagaatggg accggagcag cgagccgagg aagcggctcg 300
ttacgccttc cgttcggccc ccccgagaga cggggccgcc cgacacgaca tcggtcatgc 360
cgaccacgcc attgtgccta ggtatgacgc cggttcctac ggtctcgggt acgccgccat 420
cgccgccatc gccgccaccg tcgcaccgga gctagtagtc gaggagggag aagctcgtct 480
acgacttcgt agcgttgctg cgtcggacgg ggccgttccc aaagatgtgc atgttgcgga 540
agtagcggcg gcggttgagg aagtcgcccc agccctgctg gccgctgctg ggttcttctt 600
nttcctctag cgccgaaaga accgcctntg cagagtgtcn tgctgtccat taagngtgta 660
gagggcttcg agcatttgac aaatacccta tnttttgact tacaaaacccc aaaccgtcca 720
cccanccgct gcgcgggcta ccaggcatgc ggaaccacat gacgaagcag gttnttggtt 780
tgggagtagc ctnatgacgc agggtnaggg gtnaccggca cgcgacgtcg ttttttatga 840
tgccggcttc gggngaggtt aaagtancan tcggtntaag antgtcaagn agcggcgcta 900
gctcaagtgt tgctacggna aagattgctg tgttaggcta cacaanacgc acgtcgttna 960
tgttnatgcc cggccggccc tctcggtagc caagnctgna cnagttgttg ggtctggacc 1020
accggtgnct gcgctggtag agnaagttct gccnagacac caaacctac tgagnagtca 1080
gcgggttcgg cancacgggt ctgcactatt ggccctcgac ctgcggtagg ttgcggctgg 1140

```

```

tccgccggcc ttccgaaggc ccgatgccac agtgggtggtt gtattatttta cctcccaacc 1200
tcacgccctt tcccatgcta cggccccacc gcctatccta gccgaagatg ttctccatga 1260
cgctgaacga cccccactcg atgcctctgt tgaacctgac gatgttggtc tctgggaaac 1320
gaagatgtcg tcgatgtcgg tgtaagatcg ccactcgata cctctgttga acctcacgat 1380
gttggtctct gggaaatgaa tcaggctatg atgacactgc ttaggtacat tattgcgtta 1440
tttgcgataa tgactctatc gctgaggcac tcaactgaca tcttcaacgc ctcttcaga 1500
agttattttc gaatngatgt atgtaccggg tgttgatagc aactggcact agtatacgta 1560
ggtagttttac aggagttttac agaacctcat tcattttacgc ataagctagc cattttactt 1620
ctacaatctt atttattttta attaataaaa aaatattaat atttataaaa ttatataaaa 1680
aattagaatt tctaggattt ttagattaat attcctaaaa tatataccta accctatgat 1740
tcttataaat taatattttt aattatatga aaaattagaa tttctagatt aatattcata 1800
aaagatatac ctaaccctat aattgagcta aatgaatatt tttaaaatta tttttttaa 1860
atttaaattt ttaattttat gatttttata gatttatatt gccattagta ctctagctct 1920
tgactacta actctagtac tctagctcca actctcattt ttcctttaat gcaattagta 1980
ccctttaaag caaaacaaac gtgccagctc taccactggc acctgtggat tgtaggtgtt 2040
ggcgtacgt tattggtaca acagtataca atcgaaacaga gtatagaata ctggtactta 2100
gtgtatcaga agtgcttata attaattcgg tcgaatcgta gtgtcaaaac gtggaaacat 2160
ggtatngact tcacaagcat accgaactgg gtagggctca cataccagag ggcctnggac 2220
ctcgacaat tgggctccag atcaactccc cgtatctgga acaanagaat cgtctccaa 2280
cttctattga ggaaatcgat aggcaaccca cggatatatt tccagcttta gtactcccc 2340
taagnattg gctggataag ttataaactc gatcgttctc aacctcaatg cacatactcc 2400
aagctggggg ttacgacaag gaccccagcg aaaatatgga taaggacgta cactagtatg 2460
tatcatcgaa attagtagaa gtcagtagta gcatgcaacc cacgtacgta acagattaaa 2520
tgagctaagt tanagcaagc tgtgacgaag gatggatgat acaccgggtt atgtatcaac 2580
ataacagagt atgccggagc tcgtttcgca cacgtctcct tgacacagtt caccaaccga 2640
ccggagcccg agtaccgtaa ctcaaccgag ctatgttgtg tagccgaatc cctatggtag 2700
ggctcagata acaccatcaa ctgtacagta caccacacct acggttttat acagatatag 2760
taagagaggg tgtttctcct acacgggtatc ctcttagcac ctgtgccgaa cccaagacac 2820
cagccaggaa caagcggagt caaccacct aatgaagtag ttcaaccggn agacaaccga 2880
cccgtttcat gtgaaccatc cctaccagct ctgttcnggt tcctccaac cgattctgaa 2940
ccaaaagctg ttagttaaca aatactccgc ttaccatagg gaggcaacc cagagacgag 3000
caaagctaaa caacgctacc taacaaacaa catcctccga accaagctaa cgagaattca 3060
gccctcttcc ataaacnatt cctcaagtta aactggtaca acttcactta ttttctgaa 3120
cggttcttca aaccgagctg gcacaatttc ggtctcttac acatacagct ccagataagt 3180
tggtacacct tcgatctctt acgtggttaa cactccaaac cgaacgagtg caaatttctg 3240
cttctatata gaacgatgct ccaaacgagt tggtacacct tcgttagttt acgtgaacga 3300
tactccaaac cgaactgaat gagctgttac ctgcgancat tctactcttc ctgatnggtt 3360
ctgaatcaac cgttcctgat cagctatgaa cgagctgtta tctacggata tccattacct 3420
aactgactct gaatcagctg tttctgatcg actctgaatc acccgttacc tacggatatt 3480
cattctttcc taccgagctc taattatttc tagtttatta attatattta aatagtttgt 3540
gaattacctg cgtatattca ctctttcctg cctagctcta attatttcta gtttattaat 3600
tatattcaaa tagtttngna ataattntgt aacctgtttt ctccatgata cattataatt 3660
ttaaccctcc gtgtttataa taaaggttta tgaaaagagg aattcgggaa gcggtggtta 3720
cggtaaaatt agataaaaaa gatataattaa tagngtattg taagcatgta ctctatactg 3780
tatttgaag ctggacgaaa tcatttgtan aactaatanc actgtggtct tcggtattat 3840
aacgaatgga attgtactac ctctacttga aatcaaccag gttnatagat tanttacctt 3900
cacctgttcg tgctactgat cctaccgatg tacaagtaca caactgaaag gttcattagt 3960
tagttcgacc ttagcttatt ctgctaattt catcccgcta ctggtaatte aagttacagt 4020
gcgagtagtt gtattaaggt tgtggcacgt ctttctagaa tagaatgtaa ctgaacgggt 4080
aggccggcgg ccgtagctaa ccgcctttgc ttcccagtcg gagggttaag tgtaagtttc 4140
ctgcttaagt aaaagtagtc tactcgtgaa gtcaggacga actaatataa aataataata 4200
ataataataa ttaacttacc attcaaatgt cttatatatc tataaaatca aagttatttt 4260
ataaaatttt ttaacttttc cctcttccac ctaaaactaga atcctaaaaa taacactcgt 4320
tattttcaga aatcaatctt gaaggtttta cacagtttac ttgggattat tcacccaaac 4380
cagataccaa tgctactcta gtcataaaca tatatttttt taatagttga actaaaaata 4440
aaaaattggg aattattcac ctgtactata tagtattagt ttagtacact acanactact 4500
cantattgta taaaaaatta ttanttttaa tanttatctc ttttttattc taatgatagg 4560
gaagatanct acanaatatt ataaaattag ggaaagntat atctaagtgc atcttattct 4620
ttctaataatt agcgtagttt agtttatgtc ttantttagt acgaaaactg aattaagctt 4680

```

```

tttattagaa ggagagaact attataggaa taactattcg taanaatata tatatatata 4740
natatagttg aagattttnt ataaaaattt aattaattta aatagtttta tttttctatt 4800
tgatttaatc aagacgtagt attacatcat tcacattctt gaacacttta tncctagatc 4860
ttgtgactat cttttaaggt ttggtaatga tcaagatgaa ctacttttgt tttggtatat 4920
tttcttagga gaatatatat atatatatat atatgatgaa atgaataaga aacctgcatg 4980
ttgtgttcag tcctttggct ttgtttccac cgcctttcaa ccgtctncga cttctctgaa 5040
aagcatcttc acttcctctg tgtgcagata ttcttaacag tactgatatg cgacttcttt 5100
ttctccctc tctctctctt ccttcgcggt gacaactggc cagaacaggt actccttaac 5160
aaacagctga ttactcgtca tgtttgtaaa cacagctgtc taccgttggt tactcttcgc 5220
catagggttg tgcgttagac atcggaaacc agnggtctga ataggtttct gaacggagac 5280
gctaaaggag tacgcggagt agacaaggtt tccttcgaag tgtcgccgt ccttaggtaa 5340
agagatatat tcgtggtgga ggggtgggtg ggtggtggtg gtggtggtga cgattcctcc 5400
tacttcgga acaacgacca gtaaaaatgg gaccggagca gcgagccgcg gaagcggtc 5460
gttacgcctt ccgttcggcc ccccgagag acggggccgc ccgacacgac atcggtcatg 5520
ccgaccacgc cattgtgcct aggtangacg ccagttccta cggtnntngt tacngtncg 5580
aggtgcggga ggggaaggtg aggtcgcgg ccaccgtnnc aaccgagcta gtagtagagg 5640
agggagaagn tcgtctacga cttcgtagn ngctgngtc gngcggggcc gttncgaa 5700
atngncangt ggcggaagta gaggcggcg tngaggagt ngcccaagcc ctgntgncg 5760
ctggtgaggt gnttattntn cctntagn cgaagaacc angnctgn agngctctgn 5820
tgtncattag gnangnagag ggctccgagc agangtana tanctatctg tnganttacg 5880
taaccaanc cgtgcaccca ccaggtggca cgggntaccg gnaagcgac cccaatgacg 5940
aagcaggtcn ttgtcttggg agtagcctga tgacgcagc gtcgagcgt accggcacgc 6000
gacgtncgtt ntttatgat cgggcttcgg ggtaggttta gagtaagtt atgttgatgc 6060
ccggccggcc cttttggtag ccgaggtgg acgagttgt gggctctggac caccggtggc 6120
tgggtctgta gaggaagttc tgccgagaca ccaagaccta ctgaggagtc agcgggttcg 6180
gcagcacggt gctgcactat tgccctcga cctgcggtg gttgcggctg gcccgccggc 6240
cttcgaagg ccgatgcca cagtgggtgt tgtagtagt acctcccaac ctcacgccct 6300
ttcccaggct acggtccac cgctatcct agccgaagat gttntccat acgctgaacg 6360
acccccactc gatgcctctg ttgaacctga cgatgttggt ntcagggaaa tgaatnaggc 6420
tatgatacac gcttaggtac attattgct tatttgcat gacgacttta tcgctgaggc 6480
actcaactaa catcttcaac gcctccttta gaagtattt tcgattcgac ttgttcaagt 6540
accgggagtt agtagcaact agcagcagtc tacgtaggta gtttacagaa cctcantcan 6600
ttacgcanaa gntagccatt taacttctac aatcttattt attttaata ataaaaata 6660
ttaatatata taaaattata taaaaaatta gaatttctag gatttttttag antaatattc 6720
ctaaaatata tacctaacc tatgattntt ttnaantaat anttttaatt atatgaaat 6780
tagaatcct aggtttttt tgtattaata ttctaaaag atatacctan ccctatgatt 6840
gttntanatt aacattttta aanttatatt ttaacaatt agatttttaa ttttatgatt 6900
tttatatatn attagtacta tagctcttac accgcgaatc tagagctcta gctccaactc 6960
tgatntcncc ttaatacaa ttagtaccct taaaagaaa acaaagggtc tgctactggc 7020
acctttggat ttaggcgtt agccagtacg ttattggtac aatagtagtn acttgaacag 7080
cagcagtaga atgccggtg ttagtgtcag aagatngttc cgtgcttata attactcagg 7140
ttgcatcata gatatacaa aatgtgaaaa tatggcatna gctccacaag cgtgctaaac 7200
cgggtagggt tcacgtattc tagtaactat actggagatg caacctcgca caattgggct 7260
ctagatcaac tccccgtat ccagagtaaa nagatgcacc tccaatttct agtggaata 7320
angtngggaa catctaagat ttganctcca nctagagana tcctctagcc agagggaacc 7380
ttgaganatc cccangg 7397

```

<210> 24

<211> 2326

<212> PRT

<213> Musa acuminata

<220>

<221> VARIANT

<222> 25, 164, 173, 177, 181, 193, 204, 220, 227, 231, 233, 247,
251, 254, 259, 269, 278, 282, 284, 294, 296, 305, 310, 314,
320, 326, 458, 656, 673, 687, 713, 774, 883, 899, 952, 1038,

1043, 1163, 1180, 1183, 1202, 1204, 1397, 1400, 1412
 <223> Xaa = Any Amino Acid

<221> VARIANT

<222> 1414, 1422, 1441, 1462, 1468, 1474, 1504, 1559, 1729, 1735,
 1736, 1739, 1740, 1753, 1764, 1770, 1771, 1773, 1775, 1778,
 1782, 1783, 1791, 1794, 1800, 1806, 1807, 1808, 1810, 1815,
 1818, 1822, 1825, 1826, 1832, 1833, 1835, 1837, 1838
 <223> Xaa = Any Amino Acid

<221> VARIANT

<222> 1842, 1851, 1863, 1876, 1881, 1883, 1991, 2009, 2014, 2071,
 2075, 2109, 2120, 2121, 2122, 2124, 2147, 2151, 2152, 2157,
 2169, 2187, 2188, 2221, 2236, 2257, 2293, 2303, 2304, 2310,
 2312, 2323
 <223> Xaa = Any Amino Acid

<400> 24

Ser	Glu	Val	Asp	Ala	Thr	Asn	Ile	Asn	Val	Thr	Asp	Ser	Asn	Arg	Glu
1				5				10					15		
Ala	Val	Ser	Asn	Thr	Gln	Ser	Val	Xaa	Leu	Val	Thr	Gly	Leu	Leu	Ile
			20				25					30			
Gln	Arg	Leu	Ala	Ser	Ala	Ile	Ser	His	Ile	His	Leu	Ile	Trp	Ser	Ile
		35				40						45			
Gly	Ser	Phe	Thr	Ala	Gly	Arg	Asn	Pro	Phe	Leu	Tyr	Ile	Ser	Thr	Thr
	50					55					60				
Asn	Ala	Glu	Gly	Lys	Pro	Gly	Gly	Leu	Ser	Ala	Pro	Ala	Gly	Cys	Ala
65				70					75						80
Val	Ala	Ser	Thr	Ala	Gly	Ala	Val	Thr	Arg	Ile	His	Thr	Ala	Ala	Lys
				85					90					95	
Asp	Ala	Arg	Ala	Asn	Ala	Ala	Val	Ala	Ala	Val	Ala	Ala	Val	Ala	Ala
			100					105					110		
Trp	Pro	Arg	Ser	Ser	Ala	Pro	Pro	Ser	Ser	Ser	Arg	Cys	Ser	Ile	Ala
	115						120					125			
Thr	Thr	Gln	Pro	Ala	Pro	Ala	Arg	Val	Ser	Thr	Arg	Thr	Thr	Pro	Ser
	130					135					140				
Ser	Pro	Pro	Pro	Thr	Pro	Ser	Ala	Gly	Ser	Gly	Arg	Pro	Ala	Thr	Thr
145				150						155					160
Gln	Glu	Glu	Xaa	Gly	Asp	Arg	Gly	Phe	Leu	Gly	Ala	Xaa	Val	Ser	Arg
			165						170					175	
Xaa	Asp	Arg	Phe	Xaa	His	Leu	Pro	Lys	Leu	Val	Asn	Cys	Leu	Trp	Asp
		180						185					190		
Xaa	Lys	Leu	Asn	Val	Trp	Gly	Leu	Ala	Gly	Gly	Xaa	Ala	Thr	Arg	Pro
	195						200					205			
Met	Val	Arg	Thr	Pro	Trp	Val	Thr	Ala	Ser	Ser	Xaa	Asn	Lys	Thr	Leu
	210					215						220			
Ile	Gly	Xaa	Leu	Arg	Pro	Xaa	Ser	Xaa	Trp	Pro	Cys	Ala	Ala	Ala	Lys
225				230						235					240
Asn	Thr	Thr	Ala	Glu	Ala	Xaa	Pro	Asn	Phe	Xaa	Val	Ser	Xaa	Ile	Leu
			245						250					255	
Thr	Val	Xaa	Arg	Asp	Arg	Val	His	Asn	Asp	Ala	Xaa	Ser	Asn	Ala	
			260				265						270		
Thr	Ile	Arg	Cys	Val	Xaa	Arg	Ala	Ala	Xaa	Thr	Xaa	Thr	Gly	Arg	Pro
	275						280						285		
Gly	Glu	Pro	Ser	Val	Xaa	Thr	Xaa	Ser	Thr	Thr	Gln	Thr	Trp	Trp	Pro
	290					295					300				
Xaa	Thr	Arg	Pro	Ser	Xaa	Ser	Arg	Arg	Xaa	Cys	Gly	Phe	Gly	Leu	Xaa
305					310					315					320
Ser	Arg	Pro	Ser	Arg	Xaa	Ala	Thr	Thr	Pro	Gly	Ala	Gly	Arg	His	Pro

Arg Asn Cys Val Lys Trp Leu Ala Gly Leu Gly Leu Met Ala Leu Ser
 805 810 815
 Trp Leu Asp Thr Thr His Arg Leu Arg Asp Thr Met Pro Ser Leu Leu
 820 825 830
 Trp Leu Thr Cys His Val Gly Trp Met Pro Lys Tyr Ala Ile Ser Phe
 835 840 845
 Ser Pro Tyr Lys Gly Val Val Pro Glu Asn Arg Gly His Gly Leu Gly
 850 855 860
 Ser Val Val Gly Pro Cys Ser Pro Gln Leu Gly Gly Leu Leu His Gln
 865 870 875 880
 Val Gly Xaa Leu Leu Ala Gly Gln Ser Thr Leu Gly Arg Asp Gly Arg
 885 890 895
 Asp Lys Xaa Lys Glu Gly Trp Leu Arg Leu Gly Phe Arg Gln Ser Ile
 900 905 910
 Val Tyr Glu Ala Asn Gly Ile Pro Pro Leu Gly Cys Leu Leu Val Ser
 915 920 925
 Ile Cys Cys Asp Gly Leu Phe Val Val Gly Gly Leu Val Arg Leu Leu
 930 935 940
 Leu Ser Arg Glu Lys Val Phe Xaa Lys Glu Phe Asn Leu Thr Met Leu
 945 950 955 960
 Lys Ile Lys Gly Leu Ala Lys Lys Phe Gly Ser Thr Val Leu Lys Pro
 965 970 975
 Glu Asn Val Tyr Val Glu Val Tyr Ser Thr Met Trp Lys Leu Glu Asn
 980 985 990
 Ala Pro Ile Val Arg Phe Gly Leu Leu Thr Phe Lys Ala Glu Gly Tyr
 995 1000 1005
 Thr Cys Tyr Glu Val Cys Ser Thr Met Trp Lys Gln Ser Asn Ala Leu
 1010 1015 1020
 Ala Met Arg Phe Gly Leu Thr Tyr Ser Thr Met Asp Ala Xaa Lys Glu
 1025 1030 1035 1040
 Gly Thr Xaa Gln Asp Leu Val Gly Lys Asp Ser Ile Leu Ala Arg Gln
 1045 1050 1055
 Met Pro Ile Gly Asn Gly Leu Thr Glu Thr Ser Thr Lys Thr Ser Asp
 1060 1065 1070
 Leu Val Gly Asn Gly Cys Leu Val Arg Lys Asp Gly Ser Arg Leu Ile
 1075 1080 1085
 Lys Ile Lys Leu Ile Ile Tyr Gln Thr Leu Asn Gly Arg Ile Val Arg
 1090 1095 1100
 Lys Asp Gly Ser Arg Leu Ile Lys Ile Lys Leu Ile Val Tyr Gln Thr
 1105 1110 1115 1120
 Leu Ile Thr Leu Asp Lys Arg Gly Thr Met Tyr Asn Trp Glu Ala Gln
 1125 1130 1135
 Ile Leu Phe Pro Asn Thr Phe Leu Leu Lys Pro Phe Ala Thr Ile Ala
 1140 1145 1150
 Ile Leu Ile Tyr Phe Phe Tyr Ile Ile Ile Xaa His Ser Tyr Met Arg
 1155 1160 1165
 Tyr Asp Ile Asn Leu Arg Pro Ala Leu Val Asn Xaa Leu Ile Xaa Val
 1170 1175 1180
 Thr Pro Glu Ala Ile Ile Leu Thr Leu Thr Trp Arg Thr Leu Val Gly
 1185 1190 1195 1200
 Pro Xaa Ile Xaa Met Glu Val Asp Lys His Asp Asp Asp Gly Tyr Met
 1205 1210 1215
 Phe Met Cys Leu Ser Lys Ser Ile Lys Leu Glu Ser Asn Lys Thr Ile
 1220 1225 1230
 Lys Val Gly Arg Pro Leu Ser Ser Met Ser Arg Ser Ser Thr Phe Gln
 1235 1240 1245
 His Arg Ala Glu Arg Ser Tyr Leu Thr Leu Thr Cys Pro Ser Gly Arg
 1250 1255 1260
 Arg His Arg Leu Ala Glu Thr Lys Gly Gln Ser Pro Asn Ser His Ser

```

1265          1270          1275          1280
Lys Asp Glu Phe Ile Phe Ile Arg Ala Leu Gln Ser Cys Leu Ile Ile
          1285          1290          1295
Phe Tyr Tyr Tyr Tyr Tyr Tyr Leu Asn Gly Lys Phe Thr Glu Tyr Ile
          1300          1305          1310
Asp Ile Leu Val Ser Ile Lys Tyr Phe Lys Lys Arg Glu Lys Val Asp
          1315          1320          1325
Leu Ile Leu Gly Phe Leu Leu Ala Ile Lys Val Phe Ser Asn Phe Gln
          1330          1335          1340
Asn Val Ser Asn Glu Pro Val Gly Leu Val Tyr Gly Tyr Asp Glu Ile
          1345          1350          1355          1360
Ser Ile Cys Ile Lys Asn Tyr Gln Leu Asp Phe Tyr Phe Leu Thr Leu
          1365          1370          1375
Asn Lys Trp Thr Tyr Ile Ile Ile Lys Ser Cys Asp Val Val Ile Thr
          1380          1385          1390
Tyr Phe Leu Ile Xaa Lys Ile Xaa Asn Arg Glu Lys Ile Arg Leu Leu
          1395          1400          1405
Ser Leu Leu Xaa Met Xaa Tyr Asn Ile Leu Ile Pro Phe Xaa Ile Asp
          1410          1415          1420
Ser Arg Arg Ile Arg Lys Ile Ile Ile Ala Ser Asn Gln Ile Gln Asn
          1425          1430          1435          1440
Xaa Ile Met Leu Leu Thr Phe Glu Lys Ser Ser Ser Leu Asp Asn Ile
          1445          1450          1455
Leu Ile Asp Lys His Xaa Tyr Ile Tyr Ile Tyr Xaa Tyr Gln Leu Leu
          1460          1465          1470
Lys Xaa Ile Phe Lys Leu Ile Lys Phe Ile Lys Ile Lys Arg Thr Lys
          1475          1480          1485
Leu Val Leu His His Asn Val Val Ser Val Arg Thr Cys Glu Ile Xaa
          1490          1495          1500
Ile Asn Thr Asp Arg Lys Phe Gln Thr Ile Thr Ser Ser Thr Lys Gln
          1505          1510          1515          1520
Asn His Ile Lys Glu Ser Ser Tyr Ile Tyr Ile Tyr Ile Tyr Thr Thr
          1525          1530          1535
Leu Leu Ile Leu Trp Thr Tyr Asn Thr Ser Gln Glu Thr Glu Thr Lys
          1540          1545          1550
Val Ala Glu Ser Trp Gln Xaa Leu Lys Arg Leu Phe Val Glu Val Lys
          1555          1560          1565
Glu Thr His Val Tyr Lys Asn Cys His Asp Tyr Thr Leu Lys Lys Lys
          1570          1575          1580
Arg Gly Glu Arg Glu Lys Glu Ala Pro Leu Leu Thr Gly Leu Val His
          1585          1590          1595          1600
Glu Glu Leu Phe Val Asp Ala Val Gln Thr Phe Val Ser Thr Asp Gly
          1605          1610          1615
Asn Lys Glu Ala Val Ser Gln His Ala Ile Cys Ser Leu Trp Ser Pro
          1620          1625          1630
Asp Leu Ser Lys Asp Leu Pro Leu Arg Phe Pro His Ala Pro His Leu
          1635          1640          1645
Phe Gln Arg Lys Leu His Ser Gly Gln Glu Ser Ile Ser Leu Tyr Lys
          1650          1655          1660
His His Leu Pro Pro Thr Pro Pro Pro Pro Pro Leu Leu Arg Arg
          1665          1670          1675          1680
Met Lys Ala Leu Leu Val Ile Phe Thr Leu Ala Ser Ser Leu Gly
          1685          1690          1695
Ala Phe Ala Glu Gln Cys Gly Arg Gln Ala Gly Gly Ala Leu Cys Pro
          1700          1705          1710
Gly Gly Leu Cys Cys Ser Gln Tyr Gly Trp Cys Gly Asn Thr Asp Pro
          1715          1720          1725
Xaa Cys Gly Gln Gly Cys Xaa Xaa Gln Cys Xaa Xaa Ser Thr Pro Ser
          1730          1735          1740

```

Pro Ser Thr Pro Ser Gly Gly Gly Xaa Val Gly Ser Ile Ile Ile Ser
 1745 1750 1755 1760
 Ser Leu Phe Xaa Gln Met Leu Lys His Xaa Xaa Asp Xaa Ala Xaa Pro
 1765 1770 1775
 Gly Xaa Gly Phe Tyr Xaa Xaa Thr Ala Phe Ile Ser Ala Ala Xaa Ser
 1780 1785 1790
 Phe Xaa Gly Phe Gly Thr Thr Xaa Asp His Ser Thr Asn Xaa Xaa Xaa
 1795 1800 1805
 Ile Xaa Ala Phe Leu Val Xaa Thr Ser Xaa Glu Thr Thr Xaa Asn Pro
 1810 1815 1820
 Xaa Xaa Ser Arg Gly Ser Ser Xaa Xaa Tyr Xaa Thr Xaa Xaa Cys Ile
 1825 1830 1835 1840
 Gly Xaa Gly Thr Trp Val Val His Arg Ala Xaa Trp Pro Phe Ala Trp
 1845 1850 1855
 Gly Tyr Cys Phe Val Gln Xaa Gln Asn Pro His Arg Thr Thr Ala Ser
 1860 1865 1870
 Pro Ala Arg Xaa Gly Arg Ala Leu Xaa Ala Xaa Asn Thr Thr Ala Glu
 1875 1880 1885
 Ala Pro Ser Lys Ser His Ser Thr Thr Thr Thr Gly Arg Pro Gly Lys
 1890 1895 1900
 Pro Ser Ala Pro Thr Cys Ser Thr Thr Gln Thr Trp Trp Pro Pro Thr
 1905 1910 1915 1920
 Arg Pro Ser Pro Ser Arg Arg Leu Cys Gly Ser Gly Leu Leu Ser Arg
 1925 1930 1935
 Pro Ser Arg Arg Ala Thr Thr Pro Gly Ala Gly Arg His Pro Thr Pro
 1940 1945 1950
 Thr Gly Arg Pro Glu Gly Phe Arg Ala Thr Val Ser Pro Pro Thr Ser
 1955 1960 1965
 Ser Met Glu Gly Trp Ser Ala Gly Lys Gly Pro Met Pro Gly Trp Arg
 1970 1975 1980
 Ile Gly Ser Ala Ser Thr Xaa Gly Thr Ala Thr Cys Trp Gly Ala Thr
 1985 1990 1995 2000
 Glu Thr Thr Trp Thr Ala Thr Thr Xaa Val Pro Leu Leu Xaa Pro Ile
 2005 2010 2015
 Leu Cys Ala Asn Pro Cys Asn Asn Ala Ile Asn Ala Thr Ala Glu Ile
 2020 2025 2030
 Ala Thr Pro Val Asp Cys Arg Ser Cys Gly Gly Asn Leu Gln Lys Leu
 2035 2040 2045
 Ser Thr Ser Ser Trp Pro Ser Ile Ile Val Asp Arg Arg Gln Met His
 2050 2055 2060
 Pro Ser Asn Val Leu Glu Xaa Val Asn Ala Xaa Ser Ile Gly Lys Leu
 2065 2070 2075 2080
 Lys Met Leu Glu Ile Lys Leu Phe Ile Phe Tyr Asn Tyr Lys Tyr Phe
 2085 2090 2095
 Asn Ile Phe Phe Asn Leu Lys Asp Pro Lys Lys Ser Xaa Tyr Lys Asp
 2100 2105 2110
 Phe Ile Tyr Gly Leu Gly Tyr Xaa Xaa Xaa Ile Xaa Lys Ile Asn Ile
 2115 2120 2125
 Leu Leu Ile Leu Arg Ile Leu Lys Lys His Asn Tyr Lys Asp Phe Leu
 2130 2135 2140
 Tyr Gly Xaa Gly Tyr Gln Xaa Xaa Ile Val Lys Ile Xaa Ile Asn Cys
 2145 2150 2155 2160
 Ile Lys Leu Lys Tyr Lys Tyr Ile Xaa Ile Met Ile Ser Arg Met Trp
 2165 2170 2175
 Arg Leu Asp Leu Glu Ile Glu Val Glu Thr Xaa Xaa Glu Ile Met Leu
 2180 2185 2190
 Ile Met Gly Asn Phe Leu Leu Phe Pro Arg Arg Pro Trp Lys Pro Asn
 2195 2200 2205
 Ile Arg Asn Arg Ser Cys Asn Asn His Val Ile Ile Xaa Glu Leu Val

```

      2210              2215              2220
Val Val Ile Leu Arg Pro Gln Ile Thr Val Phe Xaa Gln Gly Thr Asn
2225              2230              2235              2240
Ile Asn Glu Ser Asn Val Val Ser Ile Leu Phe Tyr Thr Phe Ile Pro
      2245              2250              2255
Xaa Ser Arg Cys Ser His Asp Leu Ala His Pro Lys Cys Ile Arg Ser
      2260              2265              2270
Leu Ile Pro Leu Arg Trp Ser Val Leu Thr Arg Asp Leu Val Glu Gly
      2275              2280              2285
Ala Val Ser Phe Xaa Tyr Val Glu Val Lys Asp His Leu Tyr Xaa Xaa
      2290              2295              2300
Pro Cys Arg Phe Thr Xaa Gly Xaa Ser Leu Glu Ile Gly Leu Pro Trp
2305              2310              2315              2320
Asn Ser Xaa Gly Val Pro
      2325

```

<210> 25

<211> 2258

<212> PRT

<213> Musa acuminata

<220>

<221> VARIANT

<222> 27, 160, 169, 173, 190, 200, 216, 222, 227, 229, 243, 247,
248, 250, 252, 255, 273, 278, 280, 290, 291, 292, 301, 306,
459, 654, 669, 685, 710, 767, 878, 893, 944, 1029, 1104,
1107, 1162, 1164, 1182, 1185, 1372, 1375, 1379, 1382, 1393

<223> Xaa = Any Amino Acid

<221> VARIANT

<222> 1395, 1417, 1440, 1445, 1450, 1475, 1533, 1666, 1672, 1673,
1676, 1690, 1706, 1707, 1714, 1719, 1727, 1730, 1734, 1740,
1742, 1743, 1744, 1750, 1751, 1752, 1754, 1756, 1757, 1760,
1761, 1769, 1770, 1773, 1779, 1788, 1790, 1799, 1813

<223> Xaa = Any Amino Acid

<221> VARIANT

<222> 1818, 1820, 1930, 1949, 1954, 2011, 2012, 2015, 2016, 2058,
2060, 2061, 2063, 2083, 2087, 2088, 2092, 2106, 2122, 2123,
2156, 2171, 2191, 2224, 2235, 2236, 2247, 2258

<223> Xaa = Any Amino Acid

<400> 25

```

Ala Arg Ser Thr Asn Glu Leu Leu Thr Leu Met Ser Gln Ile Val Ile
 1              5              10              15
Asp Glu Lys Pro Tyr Pro Thr Arg Asn Leu Xaa Thr Trp Ser Gln Asp
      20              25              30
Phe Leu Ser Lys Asp Ser Pro Leu Arg Phe Pro Thr Phe Thr Ser Phe
      35              40              45
Gly Pro Glu Ala Ser Gln Arg Ala Gly Ile His Phe Ser Ile Ala Pro
      50              55              60
Met Arg Lys Ala Ser Arg Gly Gly Ser Leu Pro Arg Arg Ala Val Leu
65              70              75              80
Pro Val Arg Leu Val Arg His Gly Ser Ile Leu Arg Pro Arg Met Pro
      85              90              95
Glu Pro Met Arg Arg Arg Arg Arg Trp Gln Arg Gly Leu Asp His
      100              105              110
Gln Leu Leu Pro Leu Arg Ala Asp Ala Glu Ala Ser Gln Arg Arg Ser

```

```

      115              120              125
Leu Pro Arg Gln Gly Phe Leu His Val Gln Arg Leu His Arg Arg Arg
 130              135              140
Gln Leu Leu Gln Arg Val Arg Asp Asp Arg Arg Arg Pro Lys Lys Xaa
145              150              155              160
Lys Glu Ile Ala Ala Phe Leu Ala Xaa Thr Ser His Xaa Thr Thr Gly
      165              170              175
Asn Ser His Ile Ser Arg Ser Ser Thr Val Tyr Gly Ile Xaa Asn Met
      180              185              190
Phe Gly Val Trp Gln Val Gly Xaa Arg Arg Ala Arg Trp Ser Val Arg
      195              200              205
Leu Gly Leu Leu Leu Arg Pro Xaa Thr Lys Pro Ser Ser Xaa Tyr Cys
      210              215              220
Val Pro Xaa Pro Xaa Gly Arg Ala Leu Gln Gln Lys Ile Leu Arg Pro
225              230              235              240
Lys Pro Xaa Gln Ile Ser Xaa Xaa Ala Xaa Phe Xaa Gln Phe Xaa Ala
      245              250              255
Ala Ile Glu Phe Thr Thr Met Pro Phe Leu Thr Gln Gln Ser Asp Val
      260              265              270
Xaa Cys Val Gln Gln Xaa Gln Xaa Arg Ala Gly Arg Glu Ser His Arg
      275              280              285
Phe Xaa Xaa Xaa Gln Gln Pro Arg Pro Gly Gly His Xaa Arg Asp His
      290              295              300
Leu Xaa Gln Asp Gly Ser Val Val Leu Asp Asp Ser Ser Val Ala Gln
305              310              315              320
Ala Val Val Pro Arg Arg Asp Asn Arg Glu Leu Asp Ala Ile Gln Arg
      325              330              335
Arg Pro Gly Gly Arg Lys Ala Ser Gly Leu Arg Cys His His Gln His
      340              345              350
His Gln Trp Arg Val Gly Val Arg Glu Arg Val Arg Cys Gln Gly Gly
      355              360              365
Gly Asp Arg Leu Leu Gln Glu Val Leu Arg Leu Ala Gly Gly Glu Leu
      370              375              380
Arg Arg Gln Leu Gly Leu Leu Gln Pro Glu Thr Leu Cys Phe Tyr Ser
385              390              395              400
Ser Tyr Ser His Ile Leu Ala Val Ser Tyr Gly Asp Asn Leu Glu Cys
      405              410              415
Tyr Asn Gln Arg Pro Phe Thr Ser Asp Thr Thr Val Thr Asn Pro Cys
      420              425              430
Asn Asn Ala Ile Asn Ala Ile Thr Glu Ile Ala Thr Pro Val Asp Cys
      435              440              445
Arg Ser Cys Gly Gly Ser Leu Gln Lys Leu Xaa Tyr Ile His Gly Pro
      450              455              460
Gln Leu Ser Leu Thr Val Ile Ile Cys Ile His Gln Met Ser Ser Asn
465              470              475              480
Val Leu Glu Val Asn Ala Tyr Ser Ile Gly Lys Met Lys Met Leu Glu
      485              490              495
Ile Lys Leu Ile Ile Phe Leu Leu Ile Phe Tyr Ile Phe Ser Arg Ser
      500              505              510
Lys Ser Asn Tyr Lys Asp Phe Ile Tyr Gly Leu Gly Tyr Glu Tyr Leu
      515              520              525
Ile Ile Lys Ile Asn Ile Leu Phe Asn Leu Lys Asp Leu Ile Ile Ser
      530              535              540
Ile Phe Tyr Met Asp Trp Asp Ile Asn Ser Ile Tyr Leu Lys Phe Tyr
545              550              555              560
Lys Asn Phe Lys Phe Lys Asn Asn Thr Lys Asn Ile Ile Arg Ser Asp
      565              570              575
Arg Glu Arg Asp Asp Asp His Glu Ile Glu Val Glu Ser Lys Lys Glu
      580              585              590

```

```

Ile Thr Leu Ile Met Gly Asn Phe Val Leu Phe Ala Arg Ser Arg Trp
595                      600                      605
Pro Trp Thr Pro Asn Ile His Asn Arg His Ala Ile Thr Met Leu Ser
610                      615                      620
Tyr Val Ser Leu Ser His Ile Leu Pro Ile Thr Ser Ser Arg Ile Leu
625                      630                      635
Ile Lys Pro Ala His Ser Phe Ala Pro Leu Tyr His Xaa Ser Val
645                      650                      655
Arg Met Ala Pro Ile Pro Ser Val Trp Ser Pro Gly Xaa Trp Ser Val
660                      665                      670
Leu Thr Arg Gly Leu Val Glu Gly His Arg Pro Cys Xaa Leu Arg Gln
675                      680                      685
Arg Leu Lys Ile Thr Pro Leu Ala Ile Arg Trp Val Pro Ile Arg Ser
690                      695                      700
Lys Ser Gly Gly Phe Xaa Thr Arg Pro Ile Gln Tyr Leu Ser Gln Glu
705                      710                      715
Leu Glu Leu Arg Val Gly Ser Thr Pro Asn Ala Val Pro Gly Val Ala
725                      730                      735
Phe Ile Pro Ile Pro Ala Cys Asp His Thr Leu Ser Ser Ser Val Ile
740                      745                      750
Ile Val Arg Trp Val His Ala Leu Ser Asn Leu Leu Asp Ser Xaa Ser
755                      760                      765
Phe Asp Thr Ala Ser Tyr Leu Leu Cys Gly Pro Ile His Ser Cys Ile
770                      775                      780
Val Ser Tyr Gly Leu Glu Gln Ser Val Cys Arg Gly Thr Val Ser Ser
785                      790                      795
Gly Trp Leu Ala Ser Gly Ser Trp His Val Gly Ser Ile Gln His Ile
805                      810                      815
Gly Leu Gly Ile Pro Cys Arg Val Tyr Cys Gly Ser His Val Met Trp
820                      825                      830
Gly Gly Cys Gln Asn Met Leu Tyr His Ser Leu Pro Thr Lys Glu Leu
835                      840                      845
Cys His Arg Arg Ile Val Asp Thr Ala Trp Val Leu Trp Ser Val Leu
850                      855                      860
Val Arg Leu Ser Trp Val Asp Tyr Phe Ile Lys Leu Ala Xaa Cys Trp
865                      870                      875
Leu Gly Lys Val His Leu Val Gly Met Val Glu Thr Xaa Pro Arg Lys
885                      890                      895
Val Gly Asp Leu Val Phe Asp Asn Gln Leu Phe Met Arg Arg Met Val
900                      905                      910
Ser Leu Arg Trp Gly Val Cys Ser Phe Arg Phe Val Ala Met Asp Cys
915                      920                      925
Leu Leu Glu Ala Trp Phe Asp Cys Ser Val Gly Arg Arg Tyr Leu Xaa
930                      935                      940
Arg Ser Ser Ile Pro Cys Ser Glu Lys Asp Leu Pro Arg Ser Leu Ala
945                      950                      955
Arg Pro Cys Ser Gln Arg Met Cys Met Ser Arg Ser Ile Gln Pro Cys
965                      970                      975
Gly Ser Arg Met His Gln Leu Gly Leu Ala Cys Ser Arg Leu Lys Gln
980                      985                      990
Lys Asp Ile Leu Ala Thr Arg Phe Ala Gln Pro Cys Gly Ser Asn Gln
995                      1000                      1005
Met His Leu Leu Gly Leu Ala Leu Thr Arg Gln Trp Thr Leu Val Ser
1010                      1015                      1020
Glu Lys Gly Leu Xaa Lys Thr Leu Ala Arg Thr Ser Arg Tyr Leu Leu
1025                      1030                      1035
Asp Asn Arg Cys Leu Val Met Asp Leu Arg Leu Ser Arg Gln Arg Leu
1045                      1050                      1055
Ala Glu Thr Trp Ala Met Asp Ala Tyr Lys Glu Arg Met Ala Arg Asp

```

1060										1065					1070				
Arg	Ser	Asn	Asn	Tyr	Lys	Phe	Ile	Lys	His	Leu	Met	Asp	Ala	Tyr	Lys				
1075										1080					1085				
Glu	Arg	Thr	Asp	Arg	Asp	Arg	Ser	Asn	Asn	Tyr	Lys	Phe	Ile	Lys	Xaa				
1090										1095					1100				
Leu	Leu	Xaa	His	Trp	Thr	Lys	Glu	Val	Leu	Cys	Asn	Ile	Lys	Ile	Gly				
1105										1110					1115				
Arg	His	Lys	Tyr	Tyr	Phe	Gln	Ile	Leu	Phe	Ser	Leu	Ser	Pro	Ser	Pro				
1125										1130					1135				
Pro	Leu	Pro	Phe	Ser	Ile	Phe	Ser	Ile	Leu	Ser	His	Asn	Ile	Arg	Thr				
1140										1145					1150				
Asp	Met	Thr	Thr	Phe	Asp	Leu	Leu	Thr	Xaa	Leu	Xaa	His	Gln	Lys	Pro				
1155										1160					1165				
Tyr	Cys	Leu	Pro	His	Asp	Gly	Asp	Glu	Leu	Leu	Val	Gln	Xaa	Ser	Asn				
1170										1175					1180				
Xaa	Trp	Lys	Trp	Thr	Ser	Thr	Met	Thr	Arg	Met	Ala	Thr	Cys	Ser	Cys				
1185										1190					1195				
Val	Asp	Phe	Pro	Ser	Asn	Gln	Ser	Ser	Trp	Asn	Arg	Ile	Arg	Arg	Leu				
1205										1210					1215				
Lys	Gly	Asp	Asp	His	Val	Gln	Cys	His	Ala	His	Gln	His	Asn	Ser	Asn				
1220										1225					1230				
Thr	Val	Gln	Lys	Asp	Leu	Ile	Leu	His	Leu	Ala	His	Pro	Ala	Ala	Gly				
1235										1240					1245				
Ile	Asp	Trp	Arg	Lys	Arg	Arg	Val	Ser	Leu	Pro	Ile	His	Ile	Gln	Arg				
1250										1255					1260				
Thr	Asn	Ser	Phe	Ser	Ser	Asp	Glu	His	Phe	Ser	Pro	Ala	Leu	Tyr	Phe				
1265										1270					1275				
Ile	Ile	Ile	Ile	Ile	Ile	Asn	Met	Val	Ser	Leu	Gln	Asn	Ile	Ile	Phe				
1285										1290					1295				
Phe	Gln	Asn	Ile	Leu	Lys	Asn	Asp	Lys	Gly	Arg	Arg	Trp	Ile	Ser	Asp				
1300										1305					1310				
Phe	Tyr	Cys	Glu	Gln	Lys	Ser	Leu	Val	Arg	Thr	Ser	Lys	Met	Cys	Gln				
1315										1320					1325				
Met	Asn	Pro	Asn	Lys	Trp	Val	Trp	Ser	Met	Val	Thr	Met	Arg	Ser	Val				
1330										1335					1340				
Phe	Val	Tyr	Lys	Lys	Ile	Ile	Asn	Leu	Ile	Phe	Ile	Phe	Pro	Leu	Ile				
1345										1350					1355				
Ser	Gly	His	Asp	Ile	Ser	Ser	Asn	His	Val	Met	Xaa	Asp	Glu	Xaa	His				
1365										1370					1375				
Ile	Phe	Xaa	Lys	Leu	Xaa	Ile	Glu	Lys	Lys	Asp	Tyr	Tyr	Pro	Phe	Tyr				
1380										1385					1390				
Xaa	Cys	Xaa	Ile	Ile	Phe	Ser	Leu	Ser	Ile	Ile	His	Val	Glu	Glu	Arg				
1395										1400					1405				
Leu	Ser	His	Gln	Ile	Lys	Tyr	Arg	Xaa	Lys	Ser	Cys	Phe	Leu	Asn	Ser				
1410										1415					1420				
Lys	Asn	Asn	Leu	Pro	Leu	Leu	Ile	Ile	Ser	Leu	Leu	Ile	Ser	Ile	Xaa				
1425										1430					1435				
Ile	Tyr	Ile	Tyr	Xaa	Tyr	Ile	Asn	Phe	Xaa	Ile	Phe	Leu	Asn	Leu	Asn				
1445										1450					1455				
Leu	Ser	Lys	Lys	Asp	Lys	Leu	Asn	Phe	Cys	Ile	Ile	Met	Val	Glu	Leu				
1460										1465					1470				
Val	Lys	Xaa	Gly	Ser	Arg	Thr	Leu	Ile	Glu	Asn	Ser	Lys	Pro	Leu	Leu				
1475										1480					1485				
Val	Leu	Leu	Asp	Glu	Asn	Lys	Thr	Ile	Lys	Asn	Pro	Leu	Ile	Tyr	Ile				
1490										1495					1500				
Tyr	Ile	Tyr	Ile	Leu	Leu	Tyr	Leu	Phe	Phe	Gly	Arg	Thr	Thr	Gln	Val				
1505										1510					1515				
Arg	Lys	Pro	Lys	Gln	Arg	Trp	Arg	Lys	Val	Gly	Arg	Xaa	Arg	Asp	Phe				
1525										1530					1535				

Ser Lys Arg Arg His Thr Ser Ile Arg Ile Val Met Thr Ile Arg Arg
 1540 1545 1550
 Lys Arg Gly Glu Arg Glu Arg Arg Lys Arg His Cys Pro Val Leu Ser
 1555 1560 1565
 Met Arg Asn Cys Leu Ser Thr Asn Glu Gln Tyr Lys His Leu Cys Arg
 1570 1575 1580
 Gln Ile Cys Ser Lys Gly Ser Phe Thr Ala Gly Arg Asn Pro Phe Leu
 1585 1590 1595 1600
 Tyr Ile Ser Thr Thr Ser His Pro His His His His His His Cys
 1605 1610 1615
 Gly Gly Arg Pro Cys Cys Trp Ser Phe Leu Pro Trp Pro Arg Arg Ser
 1620 1625 1630
 Ala Pro Ser Pro Ser Asn Ala Glu Gly Lys Pro Gly Gly Leu Ser Ala
 1635 1640 1645
 Pro Ala Gly Cys Ala Val Ala Ser Thr Ala Gly Ala Val Thr Arg Ile
 1650 1655 1660
 His Xaa Ala Val Lys Asp Ala Xaa Xaa Asn Ala Xaa Ala Pro Arg Pro
 1665 1670 1675 1680
 Pro Leu Pro Leu Arg Ala Ala Val Ala Xaa Leu Ala Arg Ser Ser Ser
 1685 1690 1695
 Pro Pro Ser Ser Ser Arg Cys Ser Ile Xaa Xaa Thr Gln Pro Ala Pro
 1700 1705 1710
 Ala Xaa Ala Ser Thr Arg Xaa Pro Pro Ser Ser Pro Pro Xaa Pro
 1715 1720 1725
 Ser Xaa Gly Ser Gly Xaa Pro Ala Thr Thr Pro Xaa Ile Xaa Xaa Xaa
 1730 1735 1740
 Ser Arg Leu Ser Trp Xaa Xaa Xaa Leu Xaa Arg Xaa Xaa Val Ile Xaa
 1745 1750 1755 1760
 Xaa Ser Pro Glu Ala Arg Leu Gln Xaa Xaa Asp Arg Xaa Leu Asn Ala
 1765 1770 1775
 Leu Gly Xaa Ala Arg Gly Trp Ser Thr Val Pro Xaa Gly Xaa Ser Arg
 1780 1785 1790
 Gly Val Thr Ala Ser Ser Xaa Asn Arg Thr Leu Ile Gly Leu Leu Arg
 1795 1800 1805
 Arg Gln Leu Ala Xaa Ala Val Arg Cys Xaa Gln Xaa Ile Leu Arg Pro
 1810 1815 1820
 Lys Pro His Pro Asn Leu Ile Gln Leu Gln Leu Arg Ala Gly Arg Glu
 1825 1830 1835 1840
 Asn His Arg Leu Arg Pro Ala Gln Gln Pro Arg Pro Gly Gly His Arg
 1845 1850 1855
 Pro Asp His Leu Leu Gln Asp Gly Ser Val Val Leu Asp Asp Ser Ser
 1860 1865 1870
 Val Ala Gln Ala Val Val Pro Arg Arg Asp Asn Arg Glu Leu Asp Ala
 1875 1880 1885
 Ile Gln Arg Arg Pro Gly Gly Arg Lys Ala Ser Gly Leu Arg Cys His
 1890 1895 1900
 His Gln His His Gln Trp Arg Val Gly Val Arg Glu Arg Val Arg Cys
 1905 1910 1915 1920
 Gln Gly Gly Gly Asp Arg Leu Leu Gln Xaa Val Leu Arg Leu Ala Gly
 1925 1930 1935
 Gly Glu Leu Arg Arg Gln Leu Gly Leu Leu Gln Pro Xaa Ser Leu Tyr
 1940 1945 1950
 Leu Xaa Arg Tyr Tyr Val Arg Ile His Val Ile Thr Gln Thr Leu Leu
 1955 1960 1965
 Leu Lys Arg Leu Arg Glu Leu Ile Val Glu Val Ala Glu Glu Ile Phe
 1970 1975 1980
 Asn Lys Ser Ala Glu Gln Val His Gly Pro Gln Ser Ser Leu Ile Val
 1985 1990 1995 2000
 Val Arg Cys Ile His Gln Met Ser Trp Ser Xaa Xaa Met Arg Xaa Xaa

				2005						2010					2015	
Ser	Val	Asn	Arg	Cys	Asn	Lys	Asn	Tyr	Leu	Phe	Phe	Ile	Ile	Ile	Asn	
				2020					2025						2030	
Ile	Leu	Ile	Tyr	Phe	Leu	Ile	Leu	Lys	Ile	Leu	Lys	Asn	Leu	Ile	Ile	
				2035					2040						2045	
Arg	Ile	Leu	Tyr	Met	Asp	Trp	Asp	Thr	Xaa	Lys	Xaa	Xaa	Leu	Xaa	Lys	
				2050					2055						2060	
Leu	Ile	Tyr	Phe	Ser	Gly	Ser	Lys	Asn	Ile	Ile	Ile	Arg	Ile	Phe	Tyr	
					2070										2080	
Met	Asp	Xaa	Asp	Thr	Asn	Xaa	Xaa	Leu	Lys	Phe	Xaa	Tyr	Lys	Ile	Val	
					2085										2095	
Lys	Ser	Lys	Asn	Asn	Thr	Lys	Asn	Ile	Xaa	Ser	Tyr	Arg	Glu	Cys	Gly	
					2100										2110	
Ala	Ile	Ser	Arg	Ser	Arg	Leu	Arg	Leu	Xaa	Xaa	Lys	Leu	Cys	Ser	Trp	
					2115										2125	
Glu	Ile	Phe	Phe	Cys	Phe	Gln	Asp	Asp	Asp	Arg	Gly	Asn	Leu	Thr	Ser	
						2135									2140	
Ala	Ile	Gly	His	Ala	Ile	Thr	Met	Leu	Ser	Ser	Xaa	Asn	Leu	Ser	Ser	
						2150									2160	
Ser	Ser	Tyr	Gly	His	Lys	Ser	Gln	Ser	Ser	Xaa	Lys	Ala	Arg	Ile	Leu	
					2165										2175	
Met	Ser	Pro	Thr	Tyr	Leu	Tyr	Cys	Phe	Thr	Leu	Leu	Tyr	Arg	Xaa	Arg	
					2180										2190	
Gly	Val	Arg	Thr	Ile	Trp	Pro	Ile	Pro	Ser	Ala	Asp	His	Tyr	Asp	Leu	
					2195										2205	
Tyr	Val	Gly	Ala	Cys	Pro	Glu	Ile	Leu	Arg	Gly	His	Arg	Ser	His	Xaa	
						2215									2220	
Ser	Thr	Trp	Arg	Leu	Lys	Ile	Thr	Phe	Ile	Xaa	Xaa	Leu	Val	Asp	Ser	
					2230										2240	
Lys	Leu	Glu	Val	Asp	Leu	Xaa	Arg	Arg	Ser	Val	Ser	Leu	Gly	Thr	Leu	
					2245										2255	
Gly	Xaa															

<210> 26

<211> 2359

<212> PRT

<213> Musa acuminata

<220>

<221> VARIANT

<222> 23, 196, 205, 209, 214, 226, 254, 260, 264, 267, 284, 285,
 287, 289, 301, 309, 313, 315, 327, 328, 345, 352, 358, 494,
 697, 713, 728, 813, 939, 991, 1076, 1081, 1165, 1167, 1208,
 1226, 1229, 1250, 1253, 1442, 1445, 1452, 1455, 1465

<223> Xaa = Any Amino Acid

<221> VARIANT

<222> 1474, 1492, 1511, 1517, 1523, 1549, 1604, 1676, 1770, 1777,
 1780, 1781, 1794, 1795, 1805, 1812, 1814, 1816, 1820, 1823,
 1832, 1835, 1840, 1841, 1846, 1847, 1849, 1850, 1855, 1857,
 1861, 1862, 1864, 1865, 1871, 1872, 1874, 1877, 1878

<223> Xaa = Any Amino Acid

<221> VARIANT

<222> 1883, 1894, 1903, 1916, 1922, 1923, 2034, 2053, 2058, 2114,
 2118, 2144, 2155, 2157, 2158, 2160, 2179, 2184, 2185, 2190,
 2206, 2223, 2224, 2256, 2271, 2290, 2326, 2335, 2336, 2342,

2344, 2347, 2356, 2359
 <223> Xaa = Any Amino Acid

<400> 26
 Gln Arg Gly Arg Leu Met Ser Tyr His Cys His Arg Met Arg Ser Arg
 1 5 10 15
 Ile Gln His Ala Ile Cys Xaa Leu Gly His Arg Thr Ser Tyr Pro Lys
 20 25 30
 Thr Arg Leu Cys Asp Phe Pro His Ser Pro His Leu Val His Arg Lys
 35 40 45
 Leu His Ser Gly Gln Glu Ser Ile Ser Leu Tyr Lys His His Leu Pro
 50 55 60
 Pro Thr Pro Pro Pro Leu Pro Leu Leu Arg Arg Met Lys Ala Leu Leu
 65 70 75 80
 Leu Val Ile Phe Thr Leu Ala Ser Ser Leu Gly Ala Phe Ala Glu Gln
 85 90 95
 Cys Gly Arg Gln Ala Gly Gly Ala Leu Cys Pro Gly Gly Leu Cys Cys
 100 105 110
 Ser Gln Tyr Gly Trp Cys Gly Asn Thr Asp Pro Tyr Cys Gly Gln Gly
 115 120 125
 Cys Gln Ser Gln Cys Gly Gly Ser Gly Gly Ser Gly Gly Gly Ser Val
 130 135 140
 Ala Ser Ile Ile Ser Ser Ser Leu Phe Glu Gln Met Leu Lys His Arg
 145 150 155 160
 Asn Asp Ala Ala Cys Pro Gly Lys Gly Phe Tyr Thr Tyr Asn Ala Phe
 165 170 175
 Ile Ala Ala Ala Asn Ser Phe Ser Gly Phe Gly Thr Thr Gly Asp Asp
 180 185 190
 Pro Arg Arg Xaa Arg Arg Ser Arg Leu Ser Trp Arg Xaa Arg Leu Thr
 195 200 205
 Xaa Arg Gln Val Ile Xaa Thr Ser Pro Glu Ala Arg Lys Leu Phe Met
 210 215 220
 Gly Xaa Lys Thr Glu Cys Leu Gly Phe Gly Arg Trp Val Gly Asp Ala
 225 230 235 240
 Pro Asp Gly Pro Tyr Ala Leu Gly Tyr Cys Phe Val Gln Xaa Gln Asn
 245 250 255
 Pro His Arg Xaa Thr Ala Ser Xaa Leu Pro Xaa Ala Val Arg Cys Ser
 260 265 270
 Lys Lys Tyr Gly Arg Ser Pro Ser Lys Phe His Xaa Xaa Pro Xaa Ser
 275 280 285
 Xaa Ser Ser Ser Pro Arg Ser Ser Gln Arg Cys Xaa Phe Arg Asn
 290 295 300
 Asn Pro Met Cys Xaa Ala Cys Ser Xaa Tyr Xaa Tyr Gly Pro Ala Gly
 305 310 315 320
 Arg Ala Ile Gly Ser Asp Xaa Xaa Asn Asn Pro Asp Leu Val Ala Thr
 325 330 335
 Asp Ala Thr Ile Ser Phe Lys Thr Xaa Leu Trp Phe Trp Met Thr Xaa
 340 345 350
 Gln Ser Pro Lys Pro Xaa Cys His Asp Val Ile Thr Gly Ser Trp Thr
 355 360 365
 Pro Ser Asn Ala Asp Gln Ala Ala Gly Arg Leu Pro Gly Tyr Gly Val
 370 375 380
 Thr Thr Asn Ile Ile Asn Gly Gly Leu Glu Cys Gly Lys Gly Tyr Asp
 385 390 395 400
 Ala Arg Val Ala Asp Arg Ile Gly Phe Tyr Lys Arg Tyr Cys Asp Leu
 405 410 415
 Leu Gly Val Ser Tyr Gly Asp Asn Leu Asp Cys Tyr Asn Gln Arg Pro
 420 425 430
 Phe Ala Ser Thr Ala Ala Thr Ala Thr Phe Arg Ala Met Glu Thr Thr

Ala Ser Val Gly Trp Ile Thr Ser Ser Ser Trp Pro Ser Val Gly Trp
 915 920 925
 Ala Lys Tyr Thr Trp Gly Trp Ser Arg Gln Xaa Gln Gly Arg Leu Ala
 930 935 940
 Lys Thr Trp Phe Ser Thr Ile Asn Cys Leu Gly Glu Trp Tyr Pro Ser
 945 950 955 960
 Val Gly Val Ser Ala Arg Phe Gly Leu Leu Arg Trp Ile Val Cys Cys
 965 970 975
 Arg Arg Leu Gly Ser Ile Ala Leu Lys Ser Gly Glu Gly Ile Xaa Gly
 980 985 990
 Val Gln Phe Asp His Val Glu Val Asn Lys Arg Thr Cys Gln Glu Val
 995 1000 1005
 Trp Leu Asp Arg Val Lys Ala Arg Glu Cys Val Cys Arg Gly Leu Phe
 1010 1015 1020
 Asn His Val Glu Ala Arg Glu Cys Thr Asn Cys Glu Val Trp Leu Ala
 1025 1030 1035 1040
 His Val Ser Arg Arg Ile Tyr Leu Leu Arg Gly Leu Leu Asn His Val
 1045 1050 1055
 Glu Ala Ile Lys Cys Thr Cys Tyr Glu Val Trp Leu Asp Leu Leu Asp
 1060 1065 1070
 Asn Gly Arg Xaa Val Arg Arg Asp Xaa Pro Arg Leu Ser Trp Gln Gly
 1075 1080 1085
 Leu Val Asp Thr Cys Ser Thr Ile Asp Ala Tyr Arg Trp Ile Asp Asp
 1090 1095 1100
 Leu Val Asp Lys Asp Leu Arg Leu Ser Gly Gln Trp Met Pro Ile Ser
 1105 1110 1115 1120
 Lys Lys Gly Trp Leu Glu Ile Asn Lys Asp Gln Ile Ile Asn Ile Asn
 1125 1130 1135
 Leu Ser Asn Thr Trp Thr His Ile Ser Glu Lys Gly Arg Ile Glu Ile
 1140 1145 1150
 Asn Lys Asp Gln Ile Ile Asn Ile Ser Leu Asn Ser Xaa Tyr Xaa Ile
 1155 1160 1165
 Gly Gln Lys Arg Tyr Tyr Val Ile Leu Lys Leu Gly Gly Thr Asn Ile
 1170 1175 1180
 Ile Ser Lys Tyr Phe Ser Pro Ala Leu Arg His His Cys His Phe Asn
 1185 1190 1195 1200
 Leu Phe Phe Leu Tyr Asn Tyr Xaa Ile Thr Phe Val His Glu Ile His
 1205 1210 1215
 Lys Pro Ser Thr Cys Phe Ser Lys His Xaa Asp Tyr Xaa Asp Thr Arg
 1220 1225 1230
 Ser His Asn Ile Ala Tyr Leu Asn Met Met Glu Met Asn Phe Ser Trp
 1235 1240 1245
 Ser Xaa Tyr Leu Xaa Asn Gly Ser Gly Gln Ala Arg Leu Gly Trp Leu
 1250 1255 1260
 His Val His Val Leu Thr Phe Gln Val Ile Asn Gln Ala Gly Ile Glu
 1265 1270 1275 1280
 Asp Asp Ser Arg Ala Met Thr Ile Lys Phe Asn Val Thr Leu Ile Asn
 1285 1290 1295
 Ile Ile Pro Thr Pro Cys Arg Lys Ile Leu Ser Tyr Ile Asp Leu Pro
 1300 1305 1310
 Ile Arg Pro Pro Ala Ser Ile Gly Gly Asn Glu Gly Ser Val Ser Gln
 1315 1320 1325
 Phe Thr Phe Lys Gly Arg Ile His Phe His Gln Met Ser Thr Ser Val
 1330 1335 1340
 Leu Leu Asp Tyr Ile Leu Leu Leu Leu Leu Leu Ile Glu Trp Val
 1345 1350 1355 1360
 Tyr Arg Ile Tyr Arg Tyr Phe Ser Phe Asn Lys Ile Phe Lys Met Ile
 1365 1370 1375
 Lys Gly Glu Gly Gly Phe Asp Leu Arg Ile Phe Ile Val Ser Asn Lys

1380 1385 1390
 Ser Leu Leu Glu Leu Pro Lys Cys Val Lys Thr Leu Ile Ser Gly Phe
 1395 1400 1405
 Gly Leu Trp Leu Arg Asp Gln Tyr Leu Tyr Ile Lys Lys Leu Ser Thr
 1410 1415 1420
 Phe Leu Phe Phe Asn Pro Val Asp Met Ile Tyr His Asn Gln Ile Met
 1425 1430 1435 1440
 Cys Xaa Met Ser Xaa Asn Ile Phe Phe Asn Asn Xaa Asn Tyr Xaa Arg
 1445 1450 1455
 Lys Asn Lys Ile Thr Ile Pro Ser Xaa Asp Val Leu Tyr Phe Asn Pro
 1460 1465 1470
 Phe Xaa Tyr Arg Phe Thr Asn Lys Lys Asp Tyr Asn Arg Ile Lys Ser
 1475 1480 1485
 Asn Thr Glu Xaa Asn His Ala Phe Asp Leu Ile Arg Lys Ile Ile Phe
 1490 1495 1500
 Leu Ser Tyr Pro Tyr Ala Xaa Leu Tyr Ile Tyr Ile Xaa Ile Ser Thr
 1505 1510 1515 1520
 Ser Lys Xaa Tyr Phe Ile Asn Ile Tyr Gln Asn Lys Lys Ile Asn Ile
 1525 1530 1535
 Ser Ser Ala Ser Cys Ser Lys Cys Lys Asn Leu Asn Xaa Asp Leu Glu
 1540 1545 1550
 His Lys Ile Pro Asn His Tyr Phe Tyr Leu Met Lys Thr Lys Pro Tyr
 1555 1560 1565
 Lys Arg Ile Leu Leu Tyr Ile Tyr Ile Tyr Ile Tyr Tyr Phe Thr Tyr
 1570 1575 1580
 Ser Leu Asp Val Gln His Lys Ser Gly Asn Arg Asn Lys Gly Gly Gly
 1585 1590 1595 1600
 Lys Leu Ala Xaa Ala Glu Glu Thr Phe Arg Arg Ser Glu Gly Asp Thr
 1605 1610 1615
 Arg Leu Glu Leu Ser Leu Tyr Ala Glu Glu Lys Glu Gly Arg Glu Arg
 1620 1625 1630
 Glu Gly Ser Ala Thr Val Asp Arg Ser Cys Pro Gly Ile Val Cys Arg
 1635 1640 1645
 Leu Met Ser Ser Thr Asn Ile Cys Val Asp Arg Trp Gln Gln Met Arg
 1650 1655 1660
 Ser Gly Ile Pro Thr Arg Asn Leu Pro Leu Val Xaa Arg Leu Ile Gln
 1665 1670 1675 1680
 Arg Leu Ala Ser Ala Ile Ser Ser Cys Ala Ser Ser Val Pro Lys Glu
 1685 1690 1695
 Ala Ser Gln Arg Ala Gly Ile His Phe Ser Ile Ala Pro Pro Pro Thr
 1700 1705 1710
 His Thr Thr Thr Thr Thr Thr Thr Ala Lys Glu Asp Glu Gly Leu Val
 1715 1720 1725
 Ala Gly His Phe Tyr Pro Gly Leu Val Ala Arg Arg Leu Arg Arg Ala
 1730 1735 1740
 Met Arg Lys Ala Ser Arg Gly Gly Ser Leu Pro Arg Arg Ala Val Leu
 1745 1750 1755 1760
 Pro Val Arg Leu Val Arg His Gly Ser Xaa Leu Arg Ser Arg Met Pro
 1765 1770 1775
 Xaa Pro Met Xaa Xaa Leu His Ala Leu Pro Phe His Ser Glu Arg Arg
 1780 1785 1790
 Trp Xaa Xaa Trp Leu Asp His His Leu Leu Pro Leu Xaa Ala Asp Ala
 1795 1800 1805
 Glu Ala Ser Xaa Arg Xaa Ser Xaa Pro Arg Gln Xaa Leu Leu Xaa Val
 1810 1815 1820
 His Arg Leu His Leu Arg Arg Xaa Leu Leu Xaa Arg Val Arg Asp Xaa
 1825 1830 1835 1840
 Xaa Arg Pro Leu His Xaa Xaa Gly Xaa Xaa Gly Phe Leu Gly Xaa Asp
 1845 1850 1855

Xaa Ser Arg Asp Xaa Xaa Ser Xaa Xaa Leu Pro Arg Leu Val Xaa Xaa
 1860 1865 1870
 Leu Xaa Ile Asp Xaa Xaa Met His Trp Val Xaa His Val Gly Gly Pro
 1875 1880 1885
 Pro Cys Pro Met Ala Xaa Arg Val Gly Leu Leu Leu Arg Pro Xaa Thr
 1890 1895 1900
 Glu Pro Ser Ser Asp Tyr Cys Val Ala Ser Ser Xaa Trp Pro Cys Ala
 1905 1910 1915 1920
 Ala Xaa Xaa Lys Tyr Tyr Gly Arg Ser Pro Ile Gln Ile Ser Phe Asn
 1925 1930 1935
 Tyr Asn Tyr Gly Pro Ala Gly Lys Thr Ile Gly Ser Asp Leu Leu Asn
 1940 1945 1950
 Asn Pro Asp Leu Val Ala Thr Asp Pro Thr Ile Ser Phe Lys Thr Ala
 1955 1960 1965
 Leu Trp Phe Trp Met Thr Pro Gln Ser Pro Lys Pro Ser Cys His Asp
 1970 1975 1980
 Val Ile Thr Gly Ser Trp Thr Pro Ser Asn Ala Asp Arg Ala Ala Gly
 1985 1990 1995 2000
 Arg Leu Pro Gly Tyr Gly Val Thr Thr Asn Ile Ile Asn Gly Gly Leu
 2005 2010 2015
 Glu Cys Gly Lys Gly Ser Asp Ala Arg Val Ala Asp Arg Ile Gly Phe
 2020 2025 2030
 Tyr Xaa Arg Tyr Cys Asp Leu Leu Gly Val Ser Tyr Gly Asp Asn Leu
 2035 2040 2045
 Asp Cys Tyr Asn Xaa Ser Pro Phe Thr Xaa Ser Asp Thr Met Cys Glu
 2050 2055 2060
 Ser Met Arg Asn Lys Arg Tyr Cys Asn Ser Asp Ser Val Ser Leu Lys
 2065 2070 2075 2080
 Leu Arg Arg Lys Ser Ser Ile Lys Ala Lys Leu Asn Lys Phe Met Ala
 2085 2090 2095
 Leu Asn His Arg Ser Ser Ser Asp Ala Ser Ile Lys Cys Leu Gly Val
 2100 2105 2110
 Ser Xaa Cys Val Phe Xaa Arg Ile Glu Asp Val Arg Ile Asn Lys Ile
 2115 2120 2125
 Ile Tyr Phe Leu Leu Ile Phe Tyr Ile Phe Ser Arg Ser Lys Ile Xaa
 2130 2135 2140
 Leu Gly Phe Tyr Ile Trp Ile Gly Ile Leu Xaa Lys Xaa Xaa Tyr Xaa
 2145 2150 2155 2160
 Asn Tyr Thr Phe Asn Leu Lys Asp Pro Lys Lys Thr Leu Gly Phe Ser
 2165 2170 2175
 Ile Trp Xaa Gly Ile Leu Thr Xaa Xaa Asn Cys Lys Asn Xaa Asn Ile
 2180 2185 2190
 Lys Leu Leu Asn Leu Lys Ile Lys Ile Leu Lys Ile Tyr Xaa Asn His
 2195 2200 2205
 Asp Ile Glu Asn Val Ala Leu Arg Ser Arg Asp Arg Gly Asp Xaa Xaa
 2210 2215 2220
 Gly Asn Tyr Val Asn His Gly Lys Phe Ser Phe Val Ser Lys Thr Met
 2225 2230 2235 2240
 Thr Val Glu Thr His Pro Gln Ser Val Met Gln Pro Cys Tyr His Xaa
 2245 2250 2255
 Thr Cys Arg Arg His Leu Thr Ala Thr Asn His Ser Leu Leu Xaa Arg
 2260 2265 2270
 His Glu Tyr Val Gln Arg Ser Ile Tyr Ile Val Leu His Phe Tyr Thr
 2275 2280 2285
 Val Xaa Glu Val Phe Ala Arg Phe Gly Pro Ser Gln Val His Lys Ile
 2290 2295 2300
 Ile Asp Met Thr Ser Thr Leu Glu Arg Val Asn Pro Arg Ser Ser Gly
 2305 2310 2315 2320
 Gly Ile Gly Leu Ile Xaa Leu Arg Gly Gly Arg Ser Pro Leu Xaa Xaa

```

                2325                2330                2335
Pro Leu Ile Leu Asn Xaa Arg Xaa Ile Ser Xaa Gly Asp Arg Ser Pro
                2340                2345                2350
Leu Glu Leu Xaa Arg Gly Xaa
                2355

```

```
<210> 27
<211> 4924
<212> DNA
<213> Musa acuminata
```

```
<220>  
<221> misc_feature  
<222> 879, 3691, 4119  
<223> n = A,T,C or G
```

<400> 27						
ggatcccaac	tttttaggaat	ggatctttaa	attttagtta	taagttcaaa	gttagaaaa	60
tctttaccaa	gagctttgag	tccattgatg	acatccgtga	aacgggtgtac	atgtctccga	120
tggactcact	tggtttcatt	cggaaaagtt	cgaagagtg	cataagaata	ttgattttgg	180
attctttcac	tcggttggtg	ccttcatgag	tgacctcaag	agtcctcaa	atatcaaaag	240
ccgaatcaca	aattgaaatt	tgattgaatt	catttttgc	taatgcacaa	aacagggcac	300
tcatagcctt	tgtgtttaaa	gcaaaaacat	tctttccga	ttcatcccat	tcgctcatcg	360
gaagagaaaa	tttttgaatt	ccattttcga	caatagacca	aagctcgaaa	tccatgaaa	420
tgaggaagat	cctcatatga	gttttccaat	acatgtaatt	cgactcatta	aacatagggtg	480
gatgtgtaat	gaaatgacct	tcatgcscta	tctctcttgg	gtattaaacc	aaatatgaga	540
gtgagccttg	ctctgatacc	aattgttagg	atcagagtg	cactaagaga	gggggggagt	600
gaatttagtgc	agtggattaa	aacttataag	tttaaaaatg	aattcgtaaa	tacgagaaga	660
tttcgtttta	atagtaacct	gagtagatga	aaacaaaaga	ccaacagtag	tgtaaataac	720
aaatttcggga	aagtgaagaac	tcacacattc	aaggaacata	ccaattttaa	gtggttcggg	780
caaaatgacc	tacatccact	tgtgaagcct	tcttcgaaga	ggctcccaac	tccactagc	840
aaatcacttt	gaaggggaag	gacaaatacc	tctcttacna	ccttttacia	tggttcatac	900
tcttacaaat	tttcaacgag	aaagaaggag	gtgaacatgc	aagcaattga	aaacaagact	960
tgctaaagac	tttgctaagg	ctttttttct	caatctattg	cttctcaaaa	gttgatttct	1020
ctgctgagaa	ttgaggggta	tttatagacc	ccaagaggat	ttaaatttgg	gctccaaatt	1080
tcgaatgtct	ttgggttccc	gaggttgccg	gtgccaccgc	ctgtcagtgt	ttgacactgg	1140
acagtgtagt	agcgggtcca	cgcgcggacc	cttcgggtgt	tgggcggtgc	caccgcctag	1200
actttttcag	ctcactgggt	ggattccaaa	cttgacccaa	accagtcgga	actcgggtcc	1260
aattgaccgc	taaccgggatt	ataggattaa	cccttaatcc	taaccctaata	tatatgcaaa	1320
ctacgcaact	gaaaatatag	tcctaagcaa	gttttttaacc	ggcaaacgtc	gagttcttct	1380
ccggcgatct	ttcggcagac	ttctgatata	cctttggatt	tcttctagcg	gactcctagt	1440
aggggccgga	tcttgtggcg	agtttagcga	gtagccgaac	cttctcgggtg	atctccgcaa	1500
accgcgcgat	atctcttcgg	cagactttcg	aaaacttcga	caagtcctcc	atttcttctc	1560
ggttggttcc	gacagcatct	ctaacgaaac	ttcggactcc	ttgaatgtcc	atcgaaactg	1620
actccggtag	gcttgcttta	tattttcagg	ctatcatagt	taattcctaca	tacttaactc	1680
aataatatgg	attagattaa	ttaaaccatc	aattgatttc	atcatcaaaa	ttcgacattc	1740
aacaaacatc	cgtactcaat	aaccatcag	gctatagtta	cgtgactatc	tactgtgatc	1800
cgtacgtgaa	gttagcgagt	catgatccag	gtcgtgtcac	ttattggccg	aacacgtatc	1860
ccttatccaa	atccagtcct	ctcaactctt	ctagcttacc	cgtctctttt	tttattactt	1920
ttgaaagaat	tcaaatatca	acagatacaa	aataaacacg	tgagacactg	tgacatgcta	1980
gtctctggaa	gcattaattt	cgcgcaccca	cagacgtcgt	cagcttcac	accacatttt	2040
tcctacataa	ccatgtcgca	tggctttggt	gatgacagac	caccacaagc	ttgcctttgg	2100
ttgtgcctaa	cagagagaga	gagacagacc	gatagcctcc	tcattcacta	tggcgatccg	2160
atcgccagct	tcgctgctgt	tatttgcggt	cctgatgctt	gcgctcacgg	gaagactgca	2220
ggcccggcgc	agctcatgca	ttggcgctca	ctggggacaa	aacaccgcag	aggggaagctt	2280
agcagatgct	tgtgccacag	gcaactacga	atacgtgaac	atcgccacc	ttttcaagtt	2340
tggcatgggc	caaaactccag	agaatcaact	cgccggccac	tgtgaccttc	ggaacaacgg	2400
ctcgcgcgc	ttgaqcagcg	aaatccagtc	ctqccaggag	cgtggcgtca	aggtgatgct	2460


```

ctccatcgga ggtggcggt cttatggcct gagttccacc gaagacgcca aggacgtagc 2520
gtcataacctc tggcacagtt tcttgggtgg ttctgctgct cgctactcga gacctctcg 2580
ggatgcggtt ctggatggca tagacttcaa catcgccgga gggagcacag aacactatga 2640
tgaacttgcc gctttcctca aggcctacaa cgagcaggag gccggaacga agaaagtcca 2700
cttgagtgtc cgtccgcagt gtcctttccc ggattactgg cttggcaacg cactcagaac 2760
agatctcttc gacttcgtgt ggggtgcagtt cttcaacaac cttcgtgcc atttctccca 2820
gaacgctatc aatcttgcaa atgcgttcaa caattgggtc atgtccatcc ctgcgcaaaa 2880
gctgttccct gggcttcctg ctgctcctga ggctgctcca actgggtggct acattccacc 2940
ccatgatctc atatctaaag ttcttccgat cctaaaggat tccgacaagt acgcaggaat 3000
catgctgtgg actagatacc acgacagaaa ctccggctac agttctcaag tcaagtccca 3060
cgtgtgtcca gcgcgtcggg tctccaacat cttctctatg ccggtgaagt cttccaagta 3120
aacctgaacg gcgtagatga tcgggtggtcg aaaactccga tcatcatggg tccccatccg 3180
tatccgtgcg ttgctacgtt atgggtgttt ccttgatgtg tggtcttttc aataatataa 3240
taaggggtta gttttacgtt tccatatttt ccatgttcga aaacagtata tttgctgccc 3300
cttccaaatt tgaaaaagat aaaataaata tataactaaa aatatcctct ttttttttc 3360
tttcgacaaa tatataactc ttaactttcc caattgttta agcaaaaagat ataaatcctc 3420
ttccacacaa aagacgaatc catgattgct ggattgctgt ctactggtgc cgaatggcg 3480
acgagagaag cttgtgctac ctgcaattac aagttcgtca acattgtctt cttgcccag 3540
tttggtgacg ccatactccc gtgatcagga cacacctctg gaacagtttc ttgggaagtt 3600
aatcttcttc tcggctcctc ggcgaccaat cttgtgaggt tcttctcctg aatgggtgtc 3660
acttcgacat cgaaggtcta cctgagcgca natccacagt tccgactacg tgtgggtgca 3720
gttctactac acaggcaact cgcagatgcc cggtaacaat gggttctcca tctgcatgg 3780
aaggtgttcc ctggacttcc tgctgctcct caggtgctg gaaggagctc cattccacta 3840
gtgatcttac acgtgtctta tcatcaagaa ttatagcaag taccgaggga ttattaaaat 3900
aaaaaaaaag ggaagaatgg gaattagaat taaaactgaa accggccatg aagaacgttt 3960
cgagtgaaga caaacgacag tatgagacgg tagtttgcta tggacatgga tcgttcccaa 4020
agcagtccaa gtctttatga accggtctat cggttcagcc ttcaagaacc gcgaggataa 4080
ccggcccaag agaaacaaca aattgtggtg agcttttant ataaaccgaa cggtgccgtc 4140
cgtcagatgt taaatggacg gcgcatagat ctccagagta aatctgagga aaatcgttcc 4200
ggcccccta ccacgaccca cgcgatccgt cctctcccc accccctaca ctttttctt 4260
cttccgctcc tgcgatcggg tatttgattt tgtgtatgat atccaatttc ttttctggag 4320
tggtatccta ttctaatttc ttagattggt gtattgaacc atcagttttg gtttaagcgc 4380
atgatggcgg agagtttcgg gagatgggag tcagatccct tgttttctgc tgccgaagtg 4440
gtgcaagatt cggccgatag gttttttctc tcattttaag ctcaattatg cggtcattct 4500
tgtaggctt tggagaattt gctctatttc gaaagaaatt gctgcttct agttttgatt 4560
agtccctata aaatttgctt tcggttctga atatccgaga atgtcgtatc gtcaatgacg 4620
attctttttt agaattctaa tactttgtcc tgttttctgt gatttaatgg agaaaatatt 4680
gttcctttta gtgatctatg ctctcccgac cattaggatg agggttgaag gtgaaaatac 4740
tttctggtaa ttttctctc taaattcttc caaacacgac acaagtataa ttatagacca 4800
agattgattc ttcttatgca ccgattctca ctcccttcc ctctgtgtta tggttatcgt 4860
tgttactgat gggtgcttaa ctcatggggg agcgcctggg tgatccgttg acctgcaggt 4920
cgac 4924

```

<210> 28

<211> 4924

<212> DNA

<213> Musa acuminata

<220>

<221> misc feature

<222> 879, 3691, 4119

<223> n = A,T,C or G

<400> 28

```

cctagggttg aaaatcctta cctagaattt taaaatcaat attcaagttt caatcttttt 60
agaaatgggt ctcgaaactc aggttaactac tgtaggcact ttgccacatg tacagaggct 120
acctgagtga accaaagtaa gccttttcaa gctttctcac gtattcttat aactaaaacc 180
taagaaagtg agccaaccac ggaagtactc actggagttc tcaggagggt tatagttttc 240
ggcttagtgt ttaactttac actaacttaa gtaaaaacag attacgtgtt ttgtcccgta 300

```

```

agtatcggaa acacaaattht cgtttttgta agaagaggct aagtagggta agcgagtagc 360
cttctctttt aaaaacttht ggtaaaagct gttatctggg ttcgagcttt aggtaccttt 420
actccttcta ggagtatact caaaaggtht tgtacattaa gctgagtaat ttgtatccac 480
ctacacatta ctttactggg agtacgsgat agagagaacc cataatttgg tttatactct 540
cactcggaac gagactatgg ttaacaatcc tagtctcacc gtgattctct cccccctca 600
cttaatcacg tcacctaatt ttgaatattc aaatttttac ttaagcattt atgctcttct 660
aaagcaaaat tatcattgaa ctcatctact tttggttttc aattgtcatc acatttattg 720
ttaaagccct ttcattcttg agtgtgtaag ttccttgat ggtaaattt caccaagcca 780
gttttactgg atgtaggatga acacttcgga agaagcttct ccgaggggtg aaggtgatcg 840
tttagtgaaa cttccccttc ctgtttatgg agagaatgnt ggaaaatggt accaagtatg 900
agaatgttta aaagttgtct tttcttctct cacttgatcg gttagataac ttcgttaact tttgttctga 960
acgatttctg aaacgatttc gaaaaaaaaga gttagataac gaagagtttt caacataaga 1020
gacgactctt aactccccat aaatatctgg gtttctccta aatttaaacc cgaggtttta 1080
agcttacgag aacccaaggg ctccaacggc cacgggtggc gacagtcaca aactgtgacc 1140
tgtcacatga tcgccacggg ggcggcctgg agagcccaca acccgccacg gtggcgatc 1200
tgaaaaagtc gagtgaccaa cctaaggtht gaactgggtt tggtcaggct tgagcccagg 1260
ttaactgggc attggcctaa tatcctaatt gggaattagg attgggatta atatacgttt 1320
gatgcgttga cttttatata aggattcggt caaaaattgg ccgtttgcat ctgagaaga 1380
ggccgctaga aagccgtctg aagactatat ggaaccctaa agaagatcgc ctgaggatca 1440
tcccagggtc agaacaccgc tcaaatcgct catcggcttg gaagagccac tagaggcgtt 1500
tggcggtctc tagagaagcc gtctgaaagc ttttgaagct gttcaggggc taaagaagag 1560
ccaaccaagg ctgtcgtaga gattgctttg aagcctgagg aacttacagg tagcttgaac 1620
tgaggccatc cgaacgaaat ataaaagtc gatagtatca attaggatgt atgaattgag 1680
ttattatacc taatctaatt aattgggtag ttaactaaag tagtagtttt aagctgtaag 1740
ttgtttgtag gcatgagtta ttgggtagtc cgatatcaat gcactgatag atgacactag 1800
gcatgcactt caatcgctca gtactaggtc cagcacagtg aataaccggc ttgtgcatag 1860
ggaataggth taggtcagaa gagttgagaa gatcggatgg gcagagaaaa aaataatgaa 1920
aactttctta agtttagtht tgtctatggt gtctgcagca gtcgaagtag tgggtgaaaa 2040
cagagacctt tcgtaattaa gcgcgtaggt ctactgtctg gtggtgttcg aacggaaacc 2100
aggatgtatt ggtacagcgt accgaaacaa ctactcgagg agtaagtgat accgctaggc 2160
aacacggatt gtctctctct ctctgtctgg ctatcgagg agtaagtgat accgctaggc 2220
tagcggctga agcgacgaca ataaacgcaa ggactacgaa cgcgagtgc cttctgacgt 2280
ccgggcccgc tcgagtacgt aaccgcagat gaccctgtt ttgtggctgc tcccttcgaa 2340
tcgtctacga acacggtgtc cgttgatgct tatgcacttg tagcgggtgg aaaagttcaa 2400
accgtacccg gtttgaggth tctagttgga gcggccggtg acactgggag cttgttgcc 2460
gacgcgcgcg aactcgtcgc tctagttgga gacggtcctc gcaccgcagt tccactacga 2520
gaggtagcct ccaccgcca gaataaccga ctcaaggtht cttctgcggt tctgcatcg 2580
cagtaggag accgtgtcaa agaaccacc aagacgacga gcgatgagct ctggggagcc 2640
cctacgcaa gacctaccgt atctgaagth gtacggcct ccctcgtgtc ttgtgatact 2700
acttgaacgg cgaaaggagt tccgatgth gctcgtcctc cggccttgc tctttcaagt 2760
gaactcacga gcaggcgtca caggaaagg cctaattgac gaaccgttgc gtgagtht 2820
tctagagaag ctgaagcaca cccacgtcaa gaagttgttg ggaagcacgg taaagagggt 2880
cttgcgatag ttagaacgth tacgcaagth gtttaaccag tacaggtagg gacgcgtttt 2940
cgacaaggaa cccgaaggac gacgaggat cgcagaggt aggtgttca tgcgtcctta 3000
ggtactagag tatagatttc aagaaggcta ggatttctc tcaagagthc agttcagggt 3060
gtacgacacc tgatctatgg tgctgtcttt gagggcgatg gaatagatac ggccacttca gaaggttcat 3120
gcacacaggt cgcctctact agccaccagc ttttgaggct agtagtacc accagaaaag ttattatatt 3240
ataggcacgc aacgatgcaa taccacaaag ggaacataca accagaaaag tttgtcatat aaacgacggg 3300
attccccaat caaaatgcaa aggtataaaa ggtataagct tttgtcatat aaaaataagg 3360
gaaggtttta actttttcta ttttattht atattgattt ttataggaga ttttttaggag 3420
aaagctgtht atatttgag aattgaaagg gtttaacaaat tcgttttcta tatttaggag 3480
aaggtgtgth ttctgcttag gtactaacga cctaacgaca gatgaccacg gctttaccgc 3540
tgctctcttc gaacacgat gacgttaatg ttcaagcagt tgtaacagaa ggaacgttac 3600
aaaccactgc ggtatgaggg cactagtcct gtgtggagac cttgtcaaag aacccttcaa 3660
ttagaagaag agccgaggag ccgctggtta gaacactcca agaagaggac ttaccacagg 3720
tgaagctgta gcttccagat ggactcgcgt ntaggtgtca aggtgatgc acaccacgt 3780
caagatgatg tgtccgthtga gcgtctacgg gccattgtta cccaagagg aggacgtacc 3840
ttccacaagg gacctgaagg acgacgagga gtccgacgac cttcctcgag gtaaggtgat

```

```

cactagaatg tgcacagaat agtagttctt aatatcggtc atggctccct aataatttta 3900
tttttttttc ctttcttacc cttaatctta attttgactt tggccggtac ttcttgcaaa 3960
gtcacttctt gtttgctgtc atactctgcc atcaaacgat acctgtacct agcaagggtt 4020
tcgtcagggtt cagaaatact tggccagata gccaaatcgg aagttcttgg cgctcctatt 4080
ggccgggttc tctttgttgt ttaacaccac tcgaaaatna tatttggttt gccacggcag 4140
gcagtctaca atttacctgc cgcctatcta gaggtctcat ttagactcct ttagcaagg 4200
ccgggggggat ggtgctgggt gcgctaggca ggagaggggg tgggggatgt ggaaaaagaa 4260
gaaggcgagg acgctagcca ataaactaaa acacatacta taggttaaag aaaagacctc 4320
accataggat aagattaaag aatctaacaa cataacttgg tagtcaaac caaatcgcg 4380
tactaccgcc tctcaaagcc ctctaccctc agtctaggga acaaaagacg acggcttcac 4440
cacgttctaa gccggctatc caaaaaagag agtaaaattc gagttaatac gccagtaaga 4500
acaatccgaa acctcttaaa cgagataaag ctttctttaa cgacgaaaga tcaaaactaa 4560
tcagggatata tttaaacgaa agccaagact tataggctct tacagcatag cagttactgc 4620
taagaaaaaa tcttaagatt atgaaacagg acaaaagaca ctaaattacc tcttttataa 4680
caaggaaaat cactagatac gagagggctg gtaatcctac tcccaacttc cacttttatg 4740
aaagaccatt aaaaggagag atttaagaag gtttgctgctg tggtcatatt aatatctggt 4800
tctaactaag aagaatacgt ggctaagagt gaagggaagg gagacacaat accaatagca 4860
acaatgacta ccaacgaatt gagtacccca tcgcggaccc actaggcaac tggacgtcca 4920
gctg

```

<210> 29

<211> 1568

<212> PRT

<213> Musa acuminata

<220>

<221> VARIANT

<222> 1180, 1313

<223> Xaa = Any Amino Acid

<400> 29

```

Gly Ser Gln Leu Leu Gly Met Asp Leu Lys Ile Leu Val Ile Ser Ser
 1          5          10          15
Lys Leu Glu Lys Ser Leu Pro Arg Ala Leu Ser Pro Leu Met Thr Ser
 20          25          30
Val Lys Arg Cys Thr Cys Leu Arg Trp Thr His Leu Val Ser Phe Gly
 35          40          45
Lys Val Arg Lys Ser Ala Glu Tyr Phe Trp Ile Leu Ser Leu Gly Trp
 50          55          60
Cys Leu His Glu Pro Gln Glu Ser Ser Lys Tyr Gln Lys Pro Asn His
 65          70          75          80
Lys Leu Lys Cys Asp Ile His Phe Cys Leu Met His Lys Thr Gly His
 85          90          95
Ser Pro Leu Cys Leu Lys Gln Lys His Ser Ser Pro Ile His Pro Ile
100          105          110
Arg Ser Ser Glu Glu Lys Ile Phe Glu Ile His Phe Arg Gln Thr Lys
115          120          125
Ala Arg Asn Pro Trp Lys Gly Arg Ser Ser Tyr Glu Phe Ser Asn Thr
130          135          140
Cys Asn Ser Thr His Thr Val Asp Val Asn Asp Pro His Ala Leu Ser
145          150          155          160
Leu Leu Gly Ile Lys Pro Asn Met Arg Val Ser Leu Ala Leu Ile Pro
165          170          175
Ile Val Arg Ile Arg Val Ala Leu Arg Glu Gly Gly Ser Glu Leu Val
180          185          190
Gln Trp Ile Lys Thr Tyr Lys Phe Lys Asn Glu Phe Val Asn Thr Arg
195          200          205
Arg Phe Arg Phe Asn Ser Asn Leu Ser Arg Lys Pro Lys Val Asn Ser
210          215          220

```

Ser Val Asn Asn Asn Phe Gly Lys Val Arg Thr His Thr Phe Lys Glu
 225 230 235 240
 His Thr Asn Leu Lys Trp Phe Gly Gln Asn Asp Leu His Pro Leu Val
 245 250 255
 Lys Pro Ser Ser Lys Arg Leu Pro Thr Ser Thr Ser Lys Ser Leu Arg
 260 265 270
 Gly Arg Thr Asn Thr Ser Leu Thr Thr Phe Tyr Asn Gly Ser Tyr Ser
 275 280 285
 Tyr Lys Phe Ser Thr Arg Lys Lys Glu Val Asn Met Gln Ala Ile Glu
 290 295 300
 Asn Lys Thr Cys Arg Leu Cys Gly Phe Phe Ser Gln Ser Ile Ala Ser
 305 310 315 320
 Gln Lys Leu Tyr Ser Leu Leu Arg Ile Glu Gly Tyr Leu Thr Pro Arg
 325 330 335
 Gly Phe Lys Phe Gly Leu Gln Ile Ser Asn Ala Leu Gly Phe Pro Arg
 340 345 350
 Leu Pro Val Pro Pro Pro Val Ser Val His Trp Thr Val Tyr Arg Cys
 355 360 365
 His Arg Arg Thr Ser Arg Val Leu Gly Gly Ala Thr Ala Thr Phe Ser
 370 375 380
 Ala His Trp Leu Asp Ser Lys Leu Asp Pro Asn Gln Ser Glu Leu Gly
 385 390 395 400
 Ser Asn Pro Val Thr Gly Leu Asp Pro Leu Ile Leu Thr Leu Ile Ile
 405 410 415
 Cys Lys Leu Arg Asn Lys Tyr Ser Pro Lys Gln Val Phe Asn Arg Gln
 420 425 430
 Thr Ser Ser Leu Leu Pro Ala Ile Phe Arg Gln Thr Ser Asp Ile Pro
 435 440 445
 Leu Asp Phe Phe Arg Thr Pro Ser Arg Val Pro Ile Leu Trp Arg Val
 450 455 460
 Arg Val Ala Glu Pro Ser Arg Ser Pro Gln Thr Ala Asp Asp Leu Phe
 465 470 475 480
 Gly Arg Leu Ser Lys Thr Ser Thr Ser Pro Arg Phe Leu Leu Gly Trp
 485 490 495
 Phe Arg Gln His Leu Arg Asn Phe Gly Leu Leu Glu Cys Pro Ser Asn
 500 505 510
 Leu Thr Pro Val Gly Leu Leu Tyr Ile Phe Arg Leu Ser Leu Ile Leu
 515 520 525
 His Thr Leu Asn Asn Met Asp Ile Asn Pro Ile Asn Phe His His Gln
 530 535 540
 Asn Ser Thr Phe Asn Lys His Pro Tyr Ser Ile Thr His Gln Ala Ile
 545 550 555 560
 Val Thr Leu Ser Thr Val Ile Thr Arg Ser Arg Val Met Ile Gln Val
 565 570 575
 Val Ser Leu Ile Gly Arg Thr Arg Ile Pro Tyr Pro Asn Pro Val Phe
 580 585 590
 Ser Thr Leu Leu Ala Tyr Pro Ser Leu Phe Leu Leu Leu Leu Lys Glu
 595 600 605
 Phe Lys Ser Lys Gln Ile Gln Asn Asn Thr Val Arg His Cys Asp Met
 610 615 620
 Leu Val Ser Gly Lys His Phe Ala His Pro Gln Thr Ser Ser Ala Ser
 625 630 635 640
 Ser Pro Thr Phe Ser Tyr Ile Thr Met Ser His Gly Phe Val Asp Asp
 645 650 655
 Arg Pro Pro Gln Ala Cys Leu Trp Leu Cys Leu Thr Glu Arg Glu Arg
 660 665 670
 Gln Thr Asp Ser Leu Leu Ile His Tyr Gly Asp Pro Ile Ala Ser Phe
 675 680 685
 Ala Ala Val Ile Cys Val Pro Asp Ala Cys Ala His Gly Lys Thr Ala

690 695 700
 Gly Pro Ala Gln Leu Met His Trp Arg Leu Leu Gly Thr Lys His Arg
 705 710 715 720
 Arg Gly Lys Leu Ser Arg Cys Leu Cys His Arg Gln Leu Arg Ile Arg
 725 730 735
 Glu His Arg His Pro Phe Gln Val Trp His Gly Pro Asn Ser Arg Asp
 740 745 750
 Gln Pro Arg Arg Pro Leu Pro Ser Glu Gln Arg Leu Arg Ala Leu Glu
 755 760 765
 Gln Arg Asn Pro Val Leu Pro Gly Ala Trp Arg Gln Gly Asp Ala Leu
 770 775 780
 His Arg Arg Trp Arg Val Leu Trp Pro Glu Phe His Arg Arg Arg Gln
 785 790 795 800
 Gly Arg Ser Val Ile Pro Leu Ala Gln Phe Leu Gly Trp Phe Cys Cys
 805 810 815
 Ser Leu Leu Glu Thr Pro Arg Gly Cys Gly Ser Gly Trp His Arg Leu
 820 825 830
 Gln His Arg Arg Arg Glu His Arg Thr Leu Thr Cys Arg Phe Pro Gln
 835 840 845
 Gly Leu Gln Arg Ala Gly Gly Arg Asn Glu Glu Ser Ser Leu Glu Cys
 850 855 860
 Ser Ser Ala Val Ser Phe Pro Gly Leu Leu Ala Trp Gln Arg Thr Gln
 865 870 875 880
 Asn Arg Ser Leu Arg Leu Arg Val Gly Ala Val Leu Gln Gln Pro Phe
 885 890 895
 Val Pro Phe Leu Pro Glu Arg Tyr Gln Ser Cys Lys Cys Val Gln Gln
 900 905 910
 Leu Gly His Val His Pro Cys Ala Lys Ala Val Pro Trp Ala Ser Cys
 915 920 925
 Cys Ser Gly Cys Ser Asn Trp Trp Leu His Ser Thr Pro Ser His Ile
 930 935 940
 Ser Ser Ser Asp Pro Lys Gly Phe Arg Gln Val Arg Arg Asn His Ala
 945 950 955 960
 Val Asp Ile Pro Arg Gln Lys Leu Arg Leu Gln Phe Ser Ser Gln Val
 965 970 975
 Pro Arg Val Ser Ser Ala Ser Val Leu Gln His Leu Ile Tyr Ala Gly
 980 985 990
 Glu Val Phe Gln Val Asn Leu Asn Gly Val Asp Asp Arg Trp Ser Lys
 995 1000 1005
 Thr Pro Ile Ile Met Gly Pro His Pro Tyr Pro Cys Val Ala Thr Leu
 1010 1015 1020
 Trp Cys Phe Pro Cys Met Leu Val Phe Ser Ile Ile Gly Val Ser Phe
 1025 1030 1035 1040
 Thr Phe Pro Tyr Phe Pro Cys Ser Lys Thr Val Tyr Leu Leu Pro Leu
 1045 1050 1055
 Pro Asn Leu Lys Lys Ile Lys Ile Tyr Asn Lys Tyr Pro Leu Phe Phe
 1060 1065 1070
 Phe Phe Arg Gln Ile Tyr Asn Ser Leu Ser Gln Leu Phe Lys Gln Lys
 1075 1080 1085
 Ile Ile Leu Phe His Thr Lys Asp Glu Ser Met Ile Ala Gly Leu Leu
 1090 1095 1100
 Ser Thr Gly Ala Glu Met Ala Thr Arg Glu Ala Cys Ala Thr Cys Asn
 1105 1110 1115 1120
 Tyr Lys Phe Val Asn Ile Val Phe Leu Ala Met Phe Gly Asp Ala Ile
 1125 1130 1135
 Leu Pro Ser Gly His Thr Ser Gly Thr Val Ser Trp Glu Val Asn Leu
 1140 1145 1150
 Leu Leu Gly Ser Ser Ala Thr Asn Leu Val Arg Phe Phe Ser Met Val
 1155 1160 1165

```

Ser Thr Ser Thr Ser Lys Val Tyr Leu Ser Ala Xaa Pro Gln Phe Arg
1170 1175 1180
Leu Arg Val Gly Ala Val Leu Leu His Arg Gln Leu Ala Asp Ala Arg
1185 1190 1195 1200
Gln Trp Val Leu His Pro Ala Trp Lys Val Phe Pro Gly Leu Pro Ala
1205 1210 1215
Ala Pro Gln Ala Ala Gly Arg Ser Ser Ile Pro Leu Val Ile Leu His
1220 1225 1230
Val Ser Tyr His Gln Glu Leu Gln Val Pro Arg Asp Tyr Asn Lys Lys
1235 1240 1245
Lys Gly Lys Asn Gly Asn Asn Asn Arg Pro Arg Thr Phe Arg Val
1250 1255 1260
Lys Thr Asn Asp Ser Met Arg Arg Phe Ala Met Asp Met Asp Arg Ser
1265 1270 1275 1280
Gln Ser Ser Pro Ser Leu Tyr Glu Pro Val Tyr Arg Phe Ser Leu Gln
1285 1290 1295
Glu Pro Arg Gly Pro Ala Gln Glu Lys Gln Gln Ile Val Val Ser Phe
1300 1305 1310
Xaa Tyr Lys Pro Asn Gly Ala Val Arg Gln Met Leu Asn Gly Arg Arg
1315 1320 1325
Ile Asp Leu Gln Ser Lys Ser Glu Glu Asn Arg Ser Gly Pro Pro Thr
1330 1335 1340
Thr Thr His Ala Ile Arg Pro Leu Pro His Pro Leu His Leu Phe Leu
1345 1350 1355 1360
Leu Pro Leu Leu Arg Ser Val Ile Phe Cys Val Tyr Pro Ile Ser Phe
1365 1370 1375
Leu Glu Trp Tyr Pro Ile Leu Ile Ser Ile Val Val Leu Asn His Gln
1380 1385 1390
Phe Trp Phe Lys Arg Met Met Ala Glu Ser Phe Gly Arg Trp Glu Ser
1395 1400 1405
Asp Pro Leu Phe Ser Ala Ala Glu Val Val Gln Asp Ser Ala Asp Arg
1410 1415 1420
Phe Phe Leu Ser Phe Ala Gln Leu Cys Gly His Ser Cys Ala Leu Glu
1425 1430 1435 1440
Asn Leu Leu Tyr Phe Glu Arg Asn Cys Cys Phe Leu Val Leu Ile Ser
1445 1450 1455
Pro Tyr Lys Ile Cys Phe Arg Phe Ile Ser Glu Asn Val Val Ser Ser
1460 1465 1470
Met Thr Ile Leu Phe Asn Ser Asn Thr Leu Ser Cys Phe Leu Phe Asn
1475 1480 1485
Gly Glu Asn Ile Val Pro Phe Ser Asp Leu Cys Ser Pro Asp His Asp
1490 1495 1500
Glu Gly Arg Lys Tyr Phe Leu Val Ile Phe Leu Ser Lys Phe Phe Gln
1505 1510 1515 1520
Thr Arg His Lys Tyr Asn Tyr Arg Pro Arg Leu Ile Leu Leu Met His
1525 1530 1535
Arg Phe Ser Leu Pro Phe Pro Leu Cys Tyr Gly Tyr Arg Cys Tyr Trp
1540 1545 1550
Leu Leu Asn Ser Trp Gly Ser Ala Trp Val Ile Arg Pro Ala Gly Arg
1555 1560 1565

```

<210> 30

<211> 1574

<212> PRT

<213> Musa acuminata

<220>

<221> VARIANT

<222> 158, 271, 1179, 1317

<223> Xaa = Any Amino Acid

<400> 30

```

Asp Pro Asn Phe Glu Trp Ile Leu Lys Phe Leu Val Gln Ser Lys Asn
1      5      10      15
Leu Tyr Gln Glu Leu Val His His Pro Asn Gly Val His Val Ser Asp
      20      25      30
Gly Leu Thr Trp Phe His Ser Glu Lys Phe Glu Arg Val His Lys Asn
      35      40      45
Ile Asp Phe Gly Phe Phe His Ser Val Gly Ala Phe Met Ser Asp Leu
      50      55      60
Lys Ser Pro Pro Asn Ile Lys Ser Arg Ile Thr Asn Asn Val Ile Glu
      65      70      75      80
Phe Ile Phe Val Cys Thr Lys Gln Gly Ile His Ser Leu Cys Val Ser
      85      90      95
Lys Asn Ile Leu Leu Arg Phe Ile Pro Phe Ala His Arg Lys Arg Lys
      100      105      110
Phe Leu Lys Ser Ile Phe Asp Asn Arg Pro Lys Leu Glu Ile His Gly
      115      120      125
Asn Glu Glu Asp Pro His Met Ser Phe Pro Ile His Val Ile Arg Leu
      130      135      140
Ile Lys His Arg Trp Met Cys Asn Glu Met Thr Leu Met Xaa Tyr Leu
      145      150      155      160
Ser Trp Val Leu Asn Gln Ile Glu Ala Leu Leu Tyr Gln Leu Leu Gly
      165      170      175
Ser Glu Trp His Glu Arg Gly Gly Val Asn Cys Ser Gly Leu Lys Leu
      180      185      190
Ile Ser Leu Lys Met Asn Ser Ile Arg Glu Asp Phe Val Leu Ile Val
      195      200      205
Thr Val Asp Glu Asn Gln Lys Leu Thr Val Val Ile Thr Ile Ser Gly
      210      215      220
Lys Glu Leu Thr His Ser Arg Asn Ile Pro Ile Ser Gly Ser Val Lys
      225      230      235      240
Met Thr Tyr Ile His Leu Ser Leu Leu Arg Arg Gly Ser Gln Leu Pro
      245      250      255
Leu Ala Asn His Phe Glu Gly Glu Gly Gln Ile Pro Leu Leu Xaa Pro
      260      265      270
Phe Thr Met Val His Thr Leu Thr Asn Phe Gln Arg Glu Arg Arg Arg
      275      280      285
Thr Cys Lys Gln Leu Lys Thr Arg Leu Ala Lys Asp Phe Ala Lys Ala
      290      295      300
Phe Phe Leu Asn Leu Leu Leu Lys Ser Cys Ile Leu Cys Glu Leu
      305      310      315      320
Arg Gly Ile Tyr Arg Pro Gln Glu Asp Leu Asn Leu Gly Ser Lys Phe
      325      330      335
Arg Met Leu Leu Gly Ser Arg Gly Cys Arg Cys His Arg Leu Ser Val
      340      345      350
Phe Asp Thr Gly Gln Cys Thr Ser Gly Ala Thr Ala Gly Pro Leu Gly
      355      360      365
Cys Trp Ala Val Pro Pro Pro Arg Leu Phe Gln Leu Thr Gly Trp Ile
      370      375      380
Pro Asn Leu Thr Gln Thr Ser Pro Asn Ser Gly Pro Ile Asp Pro Pro
      385      390      395      400
Asp Tyr Arg Ile Asn Pro Ser Pro Leu Tyr Ala Asn Tyr Ala Thr Glu
      405      410      415
Asn Ile Val Leu Ser Lys Phe Leu Thr Gly Lys Arg Arg Val Phe Phe
      420      425      430
Arg Arg Ser Phe Gly Arg Leu Leu Ile Tyr Leu Trp Ile Ser Ser Ser

```

435										440					445				
Gly	Leu	Leu	Val	Gly	Ser	Arg	Ser	Cys	Gly	Glu	Phe	Ser	Glu	Pro	Asn				
450						455					460								
Leu	Leu	Gly	Asp	Leu	Arg	Lys	Pro	Pro	Met	Ile	Ser	Ser	Ala	Asp	Phe				
465					470					475					480				
Arg	Lys	Leu	Arg	Gln	Val	Pro	Asp	Phe	Phe	Ser	Val	Gly	Ser	Asp	Ser				
				485					490					495					
Ile	Ser	Asn	Glu	Thr	Ser	Asp	Ser	Leu	Asn	Val	His	Arg	Thr	Leu	Arg				
			500				505						510						
Ala	Cys	Phe	Ile	Phe	Ser	Gly	Tyr	His	Ser	Ser	Tyr	Ile	Leu	Asn	Ser				
		515					520					525							
Ile	Ile	Trp	Ile	Arg	Leu	Ile	Asn	Pro	Ser	Ile	Asp	Phe	Ile	Ile	Lys				
	530					535					540								
Ile	Arg	His	Ser	Thr	Asn	Ile	Arg	Thr	Gln	Pro	Ile	Arg	Leu	Leu	Arg				
545					550					555					560				
Asp	Tyr	Leu	Leu	Ser	Val	Arg	Glu	Val	Ser	Glu	Ser	Ser	Arg	Ser	Cys				
				565					570					575					
His	Leu	Leu	Ala	Glu	His	Val	Ser	Leu	Ile	Gln	Ile	Gln	Ser	Ser	Gln				
			580					585					590						
Leu	Phe	Pro	Thr	Arg	Leu	Phe	Phe	Tyr	Tyr	Phe	Lys	Asn	Ser	Asn	Gln				
		595					600					605							
Asn	Arg	Tyr	Lys	Ile	Thr	Arg	Asp	Thr	Val	Thr	Cys	Ser	Leu	Glu	Ser				
	610					615					620								
Ile	Asn	Ser	Arg	Ile	His	Arg	Arg	Arg	Gln	Leu	His	His	Pro	Leu	Phe				
625					630					635					640				
Pro	Thr	Pro	Cys	Arg	Met	Ala	Leu	Leu	Met	Thr	Asp	His	His	Lys	Leu				
				645					650					655					
Ala	Phe	Gly	Cys	Ala	Gln	Arg	Glu	Arg	Asp	Arg	Pro	Ile	Ala	Ser	Ser				
			660					665					670						
Phe	Thr	Met	Ala	Ile	Arg	Ser	Pro	Ala	Ser	Leu	Leu	Leu	Phe	Ala	Phe				
		675					680						685						
Leu	Met	Leu	Ala	Leu	Thr	Gly	Arg	Leu	Gln	Ala	Arg	Arg	Ser	Ser	Cys				
	690					695					700								
Ile	Gly	Val	Tyr	Trp	Gly	Gln	Asn	Thr	Asp	Glu	Gly	Ser	Leu	Ala	Asp				
705					710					715					720				
Ala	Cys	Ala	Thr	Gly	Asn	Tyr	Glu	Tyr	Val	Asn	Ile	Ala	Thr	Leu	Phe				
				725					730					735					
Lys	Phe	Gly	Met	Gly	Gln	Thr	Pro	Glu	Ile	Asn	Leu	Ala	Gly	His	Cys				
			740					745					750						
Asp	Pro	Arg	Asn	Asn	Gly	Cys	Ala	Arg	Leu	Ser	Ser	Glu	Ile	Gln	Ser				
		755				760						765							
Cys	Gln	Glu	Arg	Gly	Val	Lys	Val	Met	Leu	Ser	Ile	Gly	Gly	Gly	Gly				
	770					775					780								
Ser	Tyr	Gly	Leu	Ser	Ser	Thr	Glu	Asp	Ala	Lys	Asp	Val	Ala	Ser	Tyr				
785					790					795					800				
Leu	Trp	His	Ser	Phe	Leu	Gly	Gly	Ser	Ala	Ala	Arg	Tyr	Ser	Arg	Pro				
				805					810					815					
Leu	Gly	Asp	Ala	Val	Leu	Asp	Gly	Ile	Asp	Phe	Asn	Ile	Ala	Gly	Gly				
			820					825					830						
Ser	Thr	Glu	His	Tyr	Asp	Glu	Leu	Ala	Ala	Phe	Leu	Lys	Ala	Tyr	Asn				
		835					840						845						
Glu	Gln	Glu	Ala	Gly	Thr	Lys	Lys	Val	His	Leu	Ser	Ala	Arg	Pro	Gln				
	850					855					860								
Cys	Pro	Phe	Pro	Asp	Tyr	Trp	Leu	Gly	Asn	Ala	Leu	Arg	Thr	Asp	Leu				
865					870					875					880				
Phe	Asp	Phe	Val	Trp	Val	Gln	Phe	Phe	Asn	Asn	Pro	Ser	Cys	His	Phe				
				885					890					895					
Ser	Gln	Asn	Ala	Ile	Asn	Leu	Ala	Asn	Ala	Phe	Asn	Asn	Trp	Val	Met				
			900					905						910					

Ser Ile Pro Ala Gln Lys Leu Phe Leu Gly Leu Pro Ala Ala Pro Glu
 915 920 925
 Ala Ala Pro Thr Gly Gly Tyr Ile Pro Pro His Asp Leu Ile Ser Lys
 930 935 940
 Val Leu Pro Ile Leu Lys Asp Ser Asp Lys Tyr Ala Gly Ile Met Leu
 945 950 955 960
 Trp Thr Arg Tyr His Asp Arg Asn Ser Gly Tyr Ser Ser Gln Val Lys
 965 970 975
 Ser His Val Cys Pro Ala Arg Arg Phe Ser Asn Ile Leu Ser Met Pro
 980 985 990
 Val Lys Ser Ser Lys Thr Thr Ala Met Ile Gly Gly Arg Lys Leu Arg
 995 1000 1005
 Ser Ser Trp Val Pro Ile Arg Ile Arg Ala Leu Leu Arg Tyr Gly Val
 1010 1015 1020
 Ser Leu Val Cys Trp Ser Phe Gln Tyr Asn Lys Gly Leu Val Leu Arg
 1025 1030 1035 1040
 Phe His Ile Phe His Val Arg Lys Gln Tyr Ile Cys Cys Pro Phe Gln
 1045 1050 1055
 Ile Lys Arg Asn Lys Tyr Ile Thr Lys Asn Ile Leu Phe Phe Phe Ser
 1060 1065 1070
 Phe Asp Lys Tyr Ile Thr Leu Asn Phe Pro Asn Cys Leu Ser Lys Arg
 1075 1080 1085
 Tyr Lys Ser Ser Ser Thr Gln Lys Thr Asn Pro Leu Leu Asp Cys Cys
 1090 1095 1100
 Leu Leu Val Pro Lys Trp Arg Arg Glu Lys Leu Val Leu Pro Ala Ile
 1105 1110 1115 1120
 Thr Ser Ser Ser Thr Leu Ser Ser Leu Pro Cys Leu Val Thr Pro Tyr
 1125 1130 1135
 Ser Arg Asp Gln Asp Thr Pro Leu Glu Gln Phe Leu Gly Lys Leu Ile
 1140 1145 1150
 Phe Phe Ser Ala Pro Arg Arg Pro Ile Leu Gly Ser Ser Pro Glu Trp
 1155 1160 1165
 Cys Pro Leu Arg His Arg Arg Ser Thr Ala Xaa Ile His Ser Ser Asp
 1170 1175 1180
 Tyr Val Trp Val Gln Phe Tyr Tyr Thr Gly Asn Ser Gln Met Pro Gly
 1185 1190 1195 1200
 Asn Asn Gly Phe Ser Ile Leu His Gly Arg Cys Ser Leu Asp Phe Leu
 1205 1210 1215
 Leu Leu Leu Arg Leu Leu Glu Gly Ala Pro Phe His Ser Tyr Thr Cys
 1220 1225 1230
 Leu Ile Ile Lys Asn Tyr Ser Lys Tyr Arg Gly Ile Ile Lys Ile Lys
 1235 1240 1245
 Lys Lys Gly Arg Met Gly Ile Arg Ile Lys Thr Glu Thr Gly His Glu
 1250 1255 1260
 Glu Arg Phe Glu Arg Gln Thr Thr Val Asp Gly Ser Leu Leu Trp Thr
 1265 1270 1275 1280
 Trp Ile Val Pro Lys Ala Val Gln Val Phe Met Asn Arg Ser Ile Gly
 1285 1290 1295
 Ser Ala Phe Lys Asn Arg Glu Asp Asn Arg Pro Lys Arg Asn Asn Lys
 1300 1305 1310
 Leu Trp Ala Phe Xaa Ile Asn Arg Thr Val Pro Ser Val Arg Cys Met
 1315 1320 1325
 Asp Gly Gly Ile Ser Arg Val Asn Leu Arg Lys Ile Val Pro Ala Pro
 1330 1335 1340
 Leu Pro Arg Pro Thr Arg Ser Val Leu Ser Pro Thr Pro Tyr Thr Phe
 1345 1350 1355 1360
 Phe Phe Phe Arg Ser Cys Asp Arg Leu Phe Asp Phe Val Tyr Asp Ile
 1365 1370 1375
 Gln Phe Leu Phe Trp Ser Gly Ile Leu Phe Phe Leu Arg Leu Leu Tyr

1380 1385 1390
 Thr Ile Ser Phe Gly Leu Ser Ala Trp Arg Arg Val Ser Gly Asp Gly
 1395 1400 1405
 Ser Gln Ile Pro Cys Phe Leu Leu Pro Lys Trp Cys Lys Ile Arg Pro
 1410 1415 1420
 Ile Gly Phe Phe Ser His Phe Lys Leu Asn Tyr Ala Val Ile Leu Val
 1425 1430 1435 1440
 Arg Leu Trp Arg Ile Cys Ser Ile Ser Lys Glu Ile Ala Ala Phe Phe
 1445 1450 1455
 Leu Val Pro Ile Lys Phe Ala Phe Gly Ser Glu Tyr Pro Arg Met Ser
 1460 1465 1470
 Tyr Arg Gln Arg Phe Phe Phe Arg Ile Leu Ile Leu Cys Pro Val Phe
 1475 1480 1485
 Cys Asp Leu Met Glu Lys Ile Leu Phe Leu Leu Val Ile Tyr Ala Leu
 1490 1495 1500
 Pro Thr Ile Arg Met Arg Val Glu Gly Glu Asn Thr Phe Trp Phe Ser
 1505 1510 1515 1520
 Ser Leu Asn Ser Ser Lys His Asp Thr Ser Ile Ile Ile Asp Gln Asp
 1525 1530 1535
 Phe Phe Leu Cys Thr Asp Ser His Phe Pro Ser Leu Cys Val Met Val
 1540 1545 1550
 Ile Val Val Thr Asp Gly Cys Leu Thr His Gly Val Ala Pro Gly Ser
 1555 1560 1565
 Val Asp Leu Gln Val Asp
 1570

<210> 31
 <211> 1562
 <212> PRT
 <213> Musa acuminata

 <220>
 <221> VARIANT
 <222> 163, 271, 1170, 1311
 <223> Xaa = Any Amino Acid

<400> 31
 Arg Ile Pro Thr Phe Arg Asn Gly Ser Asn Phe Ser Tyr Lys Phe Lys
 1 5 10 15
 Val Arg Lys Ile Phe Thr Lys Ser Phe Glu Ser Ile Asp Asp Ile Arg
 20 25 30
 Glu Thr Val Tyr Met Ser Pro Met Asp Ser Leu Gly Phe Ile Arg Lys
 35 40 45
 Ser Ser Lys Glu Cys Ile Arg Ile Leu Ile Leu Asp Ser Phe Thr Arg
 50 55 60
 Leu Val Pro Ser Val Thr Ser Arg Val Leu Gln Ile Ser Lys Ala Glu
 65 70 75 80
 Ser Gln Ile Glu Met Leu Asn Ser Phe Leu Ser Asn Ala Gln Asn Arg
 85 90 95
 Ala Phe Ile Ala Phe Val Phe Lys Ala Lys Thr Phe Phe Ser Asp Ser
 100 105 110
 Ser His Ser Leu Ile Gly Arg Glu Asn Phe Asn Pro Phe Ser Thr Ile
 115 120 125
 Asp Gln Ser Ser Lys Ser Met Glu Met Arg Lys Ile Leu Ile Val Phe
 130 135 140
 Gln Tyr Met Phe Asp Ser Leu Asn Ile Gly Gly Cys Val Met Lys Pro
 145 150 155 160
 Ser Cys Xaa Ile Ser Leu Gly Tyr Thr Lys Tyr Glu Ser Glu Pro Cys

Phe Phe Leu His Asn His Val Ala Trp Leu Cys Gln Thr Thr Thr Ser
 645 650 655
 Leu Pro Leu Val Val Pro Asn Arg Glu Arg Glu Thr Asp Arg Pro Pro
 660 665 670
 His Ser Leu Trp Arg Ser Asp Arg Gln Leu Arg Cys Cys Tyr Leu Arg
 675 680 685
 Ser Cys Leu Arg Ser Arg Glu Asp Cys Arg Pro Gly Ala Ala His Ala
 690 695 700
 Leu Ala Ser Thr Gly Lys Thr Pro Thr Arg Glu Ala Gln Met Leu Val
 705 710 715 720
 Pro Gln Ala Thr Thr Asn Thr Thr Ser Pro Pro Phe Ser Ser Leu Ala
 725 730 735
 Trp Ala Lys Leu Gln Arg Ser Thr Ser Pro Ala Thr Val Thr Leu Gly
 740 745 750
 Thr Thr Ala Ala Arg Ala Ala Lys Ser Ser Pro Ala Arg Ser Val
 755 760 765
 Ala Ser Arg Cys Ser Pro Ser Glu Val Ala Gly Leu Met Ala Val Pro
 770 775 780
 Pro Lys Thr Pro Arg Thr Arg His Thr Ser Gly Thr Val Ser Trp Val
 785 790 795 800
 Val Leu Leu Leu Ala Thr Arg Asp Pro Ser Gly Met Arg Phe Trp Met
 805 810 815
 Ala Thr Ser Thr Ser Pro Glu Gly Ala Gln Asn Thr Met Met Asn Leu
 820 825 830
 Pro Leu Ser Ser Arg Pro Thr Thr Ser Arg Arg Pro Glu Arg Arg Lys
 835 840 845
 Phe Thr Val Leu Val Arg Ser Val Leu Ser Arg Ile Thr Gly Leu Ala
 850 855 860
 Thr His Ser Glu Gln Ile Ser Ser Thr Ser Cys Gly Cys Ser Ser Ser
 865 870 875 880
 Thr Thr Leu Arg Ala Ile Ser Pro Arg Thr Leu Ser Ile Leu Gln Met
 885 890 895
 Arg Ser Thr Ile Gly Ser Cys Pro Ser Leu Arg Lys Ser Cys Ser Leu
 900 905 910
 Gly Phe Leu Leu Leu Arg Leu Leu Gln Leu Val Ala Thr Phe His
 915 920 925
 Pro Met Ile Ser Tyr Leu Lys Phe Phe Arg Ser Arg Ile Pro Thr Ser
 930 935 940
 Thr Gln Glu Ser Cys Cys Gly Leu Asp Thr Thr Thr Glu Thr Pro Ala
 945 950 955 960
 Thr Val Leu Lys Ser Ser Pro Thr Cys Val Gln Arg Val Gly Ser Pro
 965 970 975
 Thr Ser Tyr Leu Cys Arg Ser Leu Pro Ser Lys Pro Glu Arg Arg Arg
 980 985 990
 Ser Val Val Glu Asn Ser Asp His His Gly Ser Pro Ser Val Ser Val
 995 1000 1005
 Arg Cys Tyr Val Met Val Phe Pro Leu Tyr Val Gly Leu Phe Asn Asn
 1010 1015 1020
 Ile Ile Arg Gly Phe Tyr Val Ser Ile Phe Ser Met Phe Glu Asn Ser
 1025 1030 1035 1040
 Ile Phe Ala Ala Pro Ser Lys Phe Glu Lys Asp Lys Ile Asn Ile Leu
 1045 1050 1055
 Lys Ile Ser Ser Phe Phe Phe Leu Ser Thr Asn Ile Leu Leu Thr Phe
 1060 1065 1070
 Pro Ile Val Ala Lys Asp Ile Asn Pro Leu Pro His Lys Arg Arg Ile
 1075 1080 1085
 His Asp Cys Trp Ile Ala Val Tyr Trp Cys Arg Asn Gly Asp Glu Arg
 1090 1095 1100
 Ser Leu Cys Tyr Leu Gln Leu Gln Val Arg Gln His Cys Leu Pro Cys

```

1105          1110          1115          1120
His Val Trp Arg His Thr Pro Val Ile Arg Thr His Leu Trp Asn Ser
          1125          1130          1135
Phe Leu Gly Ser Ser Ser Ser Arg Leu Leu Gly Asp Gln Ser Cys Glu
          1140          1145          1150
Val Leu Leu Leu Asn Gly Val His Phe Asp Ile Glu Gly Leu Pro Glu
          1155          1160          1165
Arg Xaa Ser Thr Val Pro Thr Thr Cys Gly Cys Ser Ser Thr Thr Gln
          1170          1175          1180
Ala Thr Arg Arg Cys Pro Val Thr Met Gly Ser Pro Ser Cys Met Glu
1185          1190          1195          1200
Gly Val Pro Trp Thr Ser Cys Cys Ser Ser Gly Cys Trp Lys Glu Leu
          1205          1210          1215
His Ser Thr Ser Asp Leu Thr Arg Val Leu Ser Ser Arg Ile Ile Ala
          1220          1225          1230
Ser Thr Glu Gly Leu Leu Lys Lys Lys Arg Glu Glu Trp Glu Leu Glu
          1235          1240          1245
Leu Lys Leu Lys Pro Ala Met Lys Asn Val Ser Ser Glu Asp Lys Arg
          1250          1255          1260
Gln Tyr Glu Thr Val Val Cys Tyr Gly His Gly Ser Phe Pro Lys Gln
1265          1270          1275          1280
Ser Lys Ser Leu Thr Gly Leu Ser Val Gln Pro Ser Arg Thr Ala Arg
          1285          1290          1295
Ile Thr Gly Pro Arg Glu Thr Thr Asn Cys Gly Glu Leu Leu Xaa Thr
          1300          1305          1310
Glu Arg Cys Arg Pro Ser Asp Val Lys Trp Thr Ala Asp Arg Ser Pro
          1315          1320          1325
Glu Ile Gly Lys Ser Phe Arg Pro Pro Tyr His Asp Pro Arg Asp Pro
          1330          1335          1340
Ser Ser Pro Pro Pro Pro Thr Pro Phe Ser Ser Ser Ala Pro Ala Ile
1345          1350          1355          1360
Gly Tyr Leu Ile Leu Cys Met Ile Ser Asn Phe Phe Ser Gly Val Val
          1365          1370          1375
Ser Tyr Ser Asn Phe Leu Asp Cys Cys Ile Glu Pro Ser Val Leu Val
          1380          1385          1390
Ala His Asp Gly Gly Glu Phe Arg Glu Met Gly Val Arg Ser Leu Val
          1395          1400          1405
Phe Cys Cys Arg Ser Gly Ala Arg Phe Gly Arg Val Phe Ser Leu Ile
          1410          1415          1420
Leu Ser Ser Ile Met Arg Ser Phe Leu Leu Gly Phe Gly Glu Phe Ala
1425          1430          1435          1440
Leu Phe Arg Lys Lys Leu Leu Leu Ser Ser Phe Asp Ser Leu Asn Leu
          1445          1450          1455
Leu Ser Val Leu Asn Ile Arg Glu Cys Arg Ile Val Asn Asp Asp Ser
          1460          1465          1470
Phe Leu Glu Phe Tyr Phe Val Leu Phe Ser Val Ile Trp Arg Lys Tyr
          1475          1480          1485
Cys Ser Phe Ser Met Leu Ser Arg Pro Leu Gly Gly Leu Lys Val Lys
          1490          1495          1500
Ile Leu Ser Gly Asn Phe Pro Leu Ile Leu Pro Asn Thr Thr Gln Val
1505          1510          1515          1520
Leu Thr Lys Ile Asp Ser Ser Tyr Ala Pro Ile Leu Thr Ser Leu Pro
          1525          1530          1535
Ser Val Leu Trp Leu Ser Leu Leu Leu Met Val Ala Leu Met Gly Arg
          1540          1545          1550
Leu Gly Asp Pro Leu Thr Cys Arg Ser Thr
          1555          1560

```

<210> 32
 <211> 2392
 <212> DNA
 <213> Musa acuminata

<220>
 <221> misc_feature
 <222> 1721
 <223> n = A,T,C or G

<400> 32
 tcactggtac ggggcccccc tcgaggtcga cggatcgcgc aagctttgat ctcttctctc 60
 aatctctctc tctctctctc tctctctctc tctctgtatg tctttaaata tggttgtaat 120
 gctgaattgc tatgtttatc ttggccaaac tgtgtccatc tttgagcaga taaatctggc 180
 gataatgttc tttttactga aagcactgca ggatgagggc ctgaaatcac atcggacgcc 240
 cactgggtca tgatgatatg gactcctcca cagcgagcag ccatgggatg tgagatccac 300
 atagcagcgt agataaggga agcccgaac actaggctgt tgttggtcca gtaaagatcg 360
 aaaggtcagg cgacagtgc gatcgacttt ttcgagcatg atgacaacga cgacctgctc 420
 ctgcaatata cgtcccctac cgtagagtgg gaataaatgg gtttgtagtt gcactatttc 480
 tcgcaggaat taattgaaag ccctgcaaat tgcgtgttct ctttccttat attaaacctt 540
 cctcctgtta cattaaaatt gcatgttaag acatttctgt atggatccga acatgagatc 600
 tatcattgaa gtaatgggta ggatttacat tatcatcatc atcatcatct ccatgggttt 660
 ggatctaatt agaccgaaaa cctcatttaa aatccaaccc caatattggc ttgacttgct 720
 ccatctccaa gaaaaatata acaagaacaa caaaaattta ggatgcacat tgaattgatt 780
 ttggtcactat gagagaatca tggattaaaa atattaaaaa aaaaaataaa tcataatcat 840
 ctactcactc taacgattca cattctatcc accaaatttg acatcggtt ctaattaatt 900
 tcatatatta ggttctaaaa aatctctccc tttgacagat gaataaatat ttcttttaatt 960
 tcgttaggga aggatctaata ataatatata tatatatata tatttattta ttagattcta 1020
 accatttctc tcaccagaat atgaatcgac ggccatatct gcaaaaaacc accaattggt 1080
 cacagtaaac gctcattgaa ttaaggtcga aattactttt aaatttctag agatttccaa 1140
 taaaatatac tcgtatcttt tacagtgatg atgctccgga tgataagatg gaaggatgcg 1200
 tgtgtcagcc gcctgcgatc tctgtggcgg ggacgagacg aagacaagga cgtgagcgga 1260
 cgataccaag tcttctctc cccaccacg cacgtctcag attcccgata cggcctatcc 1320
 cggtgccgtg tggactgcac agacgaacga gtaaatgcc atccccctc tttcattctt 1380
 tctctttgcg tgtgtgagag gagcgctat aaataagcac gaaacaagcc ctttttctct 1440
 ccaagaacac accacaccat tcacacacta catcctctgc ttcttcgagc cttttgcct 1500
 tccttctctg tctaaccatg tcgacctgcg gcaactgcga ctgcgttgac aagagccagt 1560
 gcgtgtaagt catcctccat ccctccacct cttcttcttc ttcttcttct tcttcttcta 1620
 acctcgcccc gtttgtgttt gatgagtcga ctcttcccac atcgctcgtc aaaactcaga 1680
 gctttattag ggaacatcag caatactata tgtatatgta naaggccaac gttggctgaa 1740
 gaacttggtt ttgcctttgc aggaagaaag gaaacagcta cggatcgcgc attggtgaga 1800
 ccgagaagag gtactgatta gcttcttctc cctcctcctc gtcgaggatg atcaaaactaa 1860
 ttaggattac accttattac cttacctaata gctttttccg tattcgtttc gtctcttcag 1920
 ctacgtcgac gaggtgatcg ttgccgcaga agctgccgag catgacggca agtgcaagtg 1980
 cggcgccgcc tgcgcctgca ccgactgcaa gtgtggcaac tgagaagcac ttgtgtcact 2040
 accactaaat aaaagtttgc aatgcataaa aaacaaaaga acaaaaaaaa aaaaggaaga 2100
 agaagaaggt gtggctatgt actctaataa ttcgggcagg ctgatagggt gtaagatggg 2160
 ataacgcagt atcatctgtg ttatctctgt cctgtgttac aactctccta tctatcctag 2220
 tcaatgaaat attattagta ttaatctggt tgtgtcattc atatatgctg ctgctgctgc 2280
 tgcttctctc ttcaccaatc aacccaaagg atcgattgca ctgtaaggcc caacttctc 2340
 accgatatgc tcgctcagtt acgatgaatg aacagcaacc aaacgagtct gc 2392

<210> 33
 <211> 2392
 <212> DNA
 <213> Musa acuminata

<220>
 <221> misc_feature

<222> 1721

<223> n = A,T,C or G

<400> 33

```

agtgaccatg ccccgggggg agctccagct gccatagcta ttcgaaacta gagaagagag 60
ttagagagag agagagagag agagacatac agaaatttat accaacatta 120
cgacttaacg atacaaatag aaccggtttg acacaggtag aaactcgtct atttagaccg 180
ctattacaag aaaaatgact ttcgtgacgt cctactcccg gacttttagtg tagcctgcgg 240
gtgacccagt actactatac ctgaggaggt gtcgctcgtc ggtaccctac actctagggtg 300
tatcgtcgca tctattccct tcgggcggtg tgatccgaca acaacaaggt catttctagc 360
tttccagtcg gctgtcactg ctagctgaaa aagctcgtac tactgttgct gctggacgag 420
gacgttatag gcaggggatg gcatctcacc cttatttacc caaacatcaa cgtgataaag 480
agcgtcctta attaaactttc gggacgttta acgacaaaga gaaaggaata taatttggaa 540
ggaggacaat gtaatttttaa cgtacaattc tgtaaagaca tacctagggt tgtactctag 600
atagtaactt cattacccat cctaaatgta atagtagtag tagtagtaga ggtacccaaa 660
cctagattaa tctggctttt ggagtaaatt ttaggttggg gttataaccg aactgaacga 720
ggtagaggtt ctttttatgt tgttcttgtt gtttttaaat cctacgtgta acttaactaa 780
accagtgata ctctcttagt acctaatttt tataatttta ttttttattt agtattagta 840
gatgagttag attgctaagt gtaagatagg tgggtttaaac tgtagccgaa gattaattaa 900
agtatataat ccaagatttt ttagagaggg aaactgtcta cttatttata aagaaaatta 960
agcaatccct tcctagatta tattatatat atatatatat ataaataaat aatctaagat 1020
tggtaaagag agtggtctta tacttagctg ccggtataga cgtttttggg tggtaaacag 1080
gtgtcatttg cgagtaactt aattccagct ttaatgaaaa tttaaagatc tctaaagggt 1140
attttatatg agcatagaaa atgtcactac tacgaggcct actattctac cttcctacgc 1200
acacagtcgg cgagcgttag agacaccgcc cctgctctgc ttctgttctt gcactcgctt 1260
gctatggttc agaagaggag ggggtggtgc gtgcagagtc taagggtat gccggtagg 1320
gccaccgcac acctgacgtg tctgcttgct catttacggg taggggggag aaagtaagaa 1380
agagaaacgc acacactctc ctgcgagata tttattcgtg ctttgttcgg ggaaaagaga 1440
ggttcttgtg tgggtgtgta agtgtgtgat gtaggagacg aagaagctcg gaaaagcgga 1500
aggaaggagc agattggtac agctggacgc cgttgacgct gacgcaactg ttctcggta 1560
cgcacattca gtaggaggta gggaggtgga gaagaagaag aagaagaaga agaagaagat 1620
tgtagcgggg caaacacaaa ctactcagct gagaagggtg tagcgagcag ttttgagtct 1680
cgaaataatc ccttgtagtc gttatgatat acatatacat nttccagttg caaccgactt 1740
cttgaaccaa aacggaaacg tccttctttc ctttgtcgat gccatagcta taacaactct 1800
ggctcttctc catgactaat cgaagaagag ggaggaggag cagctcctac tagtttgatt 1860
aatcctaata tgggaataat gaatggatta cgaaaaaggc ataagcaaag cagagaagtc 1920
gatgcagctg ctccactagc aacggcgtct tcgacggctc gtactgccgt tcacgttcac 1980
gccgcggcgg acgcggacgt ggctgacgtt cacaccgttg actcttcgtg aacacagtga 2040
tggtgattta ttttcaaacg ttacgtattt tttgttttct tgtttttttt ttttccttct 2100
tcttcttcca caccgatata tgagattatt aagcccgtcc gactatccaa cattctaccc 2160
tattgcgtca tagtagacac aatagagaca ggacacaatg ttgagaggat agataggatc 2220
agttacttta taataatcat aattagacca acacagtaag tatatacgac gacgacgacg 2280
acgaaggaga aagtggtagg ttgggtttcc tagctaacgt gacattccgg gttgaaggag 2340
tggtatatac agcgagtcaa tgctacttac ttgtcgttgg tttgctcaga cg 2392

```

<210> 34

<211> 758

<212> PRT

<213> Musa acuminata

<220>

<221> VARIANT

<222> 548

<223> Xaa = Any Amino Acid

<400> 34

```

Ser Leu Val Arg Gly Pro Pro Arg Gly Arg Arg Tyr Arg Ala Leu Ile
1           5           10           15
Ser Ser Leu Asn Leu Ser Leu Ser Leu Ser Leu Ser Leu Tyr

```

Page 56


```

Lys Ser Ser Ser Ile Pro Pro Pro Leu Leu Leu Leu Leu Leu Leu
      500                      505                      510
Leu Leu Thr Ser Pro Arg Leu Cys Leu Met Ser Arg Leu Phe Pro His
      515                      520                      525
Arg Ser Ser Lys Leu Arg Ala Leu Leu Gly Asn Ile Ser Asn Thr Ile
      530                      535                      540
Cys Ile Cys Xaa Arg Ser Thr Leu Ala Glu Glu Leu Gly Phe Ala Phe
545      550                      555                      560
Ala Gly Arg Lys Glu Thr Ala Thr Val Ser Ile Leu Leu Arg Pro Arg
      565                      570                      575
Arg Gly Thr Asp Leu Leu Leu Pro Pro Pro Arg Arg Gly Ser Asn Leu
      580                      585                      590
Gly Leu His Leu Ile Thr Leu Pro Asn Ala Phe Ser Val Phe Val Ser
      595                      600                      605
Ser Leu Gln Leu Arg Arg Arg Gly Asp Arg Cys Arg Arg Ser Cys Arg
      610                      615                      620
Ala Arg Gln Val Gln Val Arg Arg Arg Leu Arg Leu His Arg Leu Gln
625      630                      635                      640
Val Trp Gln Leu Arg Ser Thr Cys Val Thr Thr Thr Lys Lys Phe Ala
      645                      650                      655
Met His Lys Lys Gln Lys Asn Lys Lys Lys Lys Gly Arg Arg Arg Arg
      660                      665                      670
Cys Tyr Val Leu Phe Gly Gln Ala Asp Arg Leu Asp Gly Ile Thr Gln
      675                      680                      685
Tyr His Leu Cys Tyr Leu Cys Pro Val Leu Gln Leu Ser Tyr Leu Ser
      690                      695                      700
Ser Met Lys Tyr Tyr Tyr Ser Gly Cys Val Ile His Ile Cys Cys Cys
705      710                      715                      720
Cys Cys Cys Phe Leu Phe His Gln Ser Thr Gln Arg Ile Asp Cys Thr
      725                      730                      735
Val Arg Pro Asn Phe Leu Thr Asp Met Leu Ala Gln Leu Arg Met Asn
      740                      745                      750
Ser Asn Gln Thr Ser Leu
      755

```

<210> 35
 <211> 758
 <212> PRT
 <213> Musa acuminata

<220>
 <221> VARIANT
 <222> 541
 <223> Xaa = Any Amino Acid

```

<400> 35
His Trp Tyr Gly Ala Pro Leu Glu Val Asp Gly Ile Asp Lys Leu Ser
 1      5      10      15
Leu Leu Ser Ile Ser Leu Ser Leu Ser Leu Ser Leu Ser Leu Cys Met
      20      25      30
Ser Leu Asn Met Val Val Met Leu Asn Cys Tyr Val Tyr Leu Gly Gln
      35      40      45
Thr Val Ser Ile Phe Glu Gln Ile Asn Leu Ala Ile Met Phe Phe Leu
      50      55      60
Leu Lys Ala Leu Gln Asp Glu Gly Leu Lys Ser His Arg Thr Pro Thr
      65      70      75      80
Gly Ser Tyr Gly Leu Leu His Ser Glu Gln Pro Trp Asp Val Arg Ser
      85      90      95

```

Thr	Gln	Arg	Arg	Gly	Lys	Pro	Ala	Thr	Leu	Gly	Cys	Cys	Cys	Ser	Ser		
			100					105					110				
Lys	Asp	Arg	Lys	Val	Arg	Arg	Gln	Arg	Ser	Thr	Phe	Ser	Ser	Met	Met		
			115				120					125					
Thr	Thr	Thr	Thr	Cys	Ser	Cys	Asn	Ile	Arg	Pro	Leu	Pro	Ser	Gly	Asn		
			130				135				140						
Lys	Trp	Val	Cys	Ser	Cys	Thr	Ile	Ser	Arg	Arg	Asn	Leu	Lys	Ala	Leu		
145						150				155					160		
Gln	Ile	Ala	Val	Ser	Leu	Ser	Leu	Tyr	Thr	Phe	Leu	Leu	Leu	His	Asn		
				165					170					175			
Cys	Met	Leu	Arg	His	Phe	Cys	Met	Asp	Pro	Asn	Met	Arg	Ser	Ile	Ile		
			180					185				190					
Glu	Val	Met	Gly	Arg	Ile	Tyr	Ile	Ile	Ile	Ile	Ile	Ile	Ile	Ser	Met		
		195					200					205					
Gly	Leu	Asp	Leu	Ile	Arg	Pro	Lys	Thr	Ser	Phe	Lys	Ile	Gln	Pro	Gln		
		210				215					220						
Tyr	Trp	Leu	Asp	Leu	Leu	His	Leu	Gln	Glu	Lys	Tyr	Asn	Lys	Asn	Asn		
225						230				235					240		
Lys	Asn	Leu	Gly	Cys	Thr	Leu	Asn	Phe	Gly	His	Tyr	Glu	Arg	Ile	Met		
				245					250					255			
Asp	Lys	Tyr	Asn	Lys	Lys	Ile	Ile	Ile	Ile	Tyr	Ser	Leu	Arg	Phe	Thr		
			260					265					270				
Phe	Tyr	Pro	Pro	Asn	Leu	Thr	Ser	Ala	Ser	Asn	Phe	His	Ile	Leu	Gly		
		275					280					285					
Ser	Lys	Lys	Ser	Leu	Pro	Leu	Thr	Asp	Glu	Ile	Phe	Leu	Leu	Ile	Arg		
	290					295				300							
Gly	Arg	Ile	Tyr	Asn	Ile	Tyr	Ile	Tyr	Ile	Tyr	Leu	Phe	Ile	Arg	Phe		
305					310					315					320		
Pro	Phe	Leu	Ser	Pro	Glu	Tyr	Glu	Ser	Thr	Ala	Ile	Ser	Ala	Lys	Thr		
				325					330					335			
His	Gln	Leu	Phe	Thr	Val	Asn	Ala	His	Ile	Lys	Val	Glu	Ile	Thr	Phe		
			340					345					350				
Lys	Phe	Leu	Glu	Ile	Ser	Asn	Lys	Ile	Tyr	Ser	Tyr	Leu	Leu	Gln	Cys		
		355					360					365					
Ser	Gly	Asp	Gly	Arg	Met	Arg	Val	Ser	Ala	Ala	Cys	Asp	Leu	Cys	Gly		
	370					375					380						
Gly	Asp	Glu	Thr	Lys	Thr	Arg	Thr	Ala	Asp	Asp	Thr	Lys	Ser	Ser	Pro		
385					390					395					400		
Pro	Pro	Pro	Arg	Thr	Ser	Gln	Ile	Pro	Asp	Thr	Ala	Tyr	Pro	Gly	Gly		
				405					410					415			
Val	Trp	Thr	Ala	Gln	Thr	Asn	Glu	Met	Pro	Ile	Pro	Pro	Leu	Ser	Phe		
			420					425					430				
Phe	Leu	Phe	Ala	Cys	Val	Arg	Gly	Ala	Pro	Ile	Asn	Lys	His	Glu	Thr		
		435					440				445						
Ser	Pro	Phe	Ser	Leu	Gln	Glu	His	Thr	Thr	Pro	Phe	Thr	His	Tyr	Ile		
		450				455					460						
Leu	Cys	Phe	Phe	Glu	Pro	Phe	Arg	Leu	Pro	Ser	Ser	Ser	Asn	His	Val		
465					470					475					480		
Asp	Leu	Arg	Gln	Leu	Arg	Leu	Arg	Gln	Glu	Pro	Val	Arg	Val	Ser	His		
				485					490					495			
Pro	Pro	Ser	Leu	His	Leu	Phe	Phe	Phe	Phe	Phe	Phe	Phe	Phe	Pro	Arg		
			500					505					510				
Pro	Val	Cys	Val	Val	Asp	Ser	Ser	His	Ile	Ala	Arg	Gln	Asn	Ser	Glu		
		515					520					525					
Leu	Tyr	Gly	Thr	Ser	Ala	Ile	Leu	Tyr	Val	Tyr	Val	Xaa	Gly	Gln	Arg		
		530				535					540						
Trp	Leu	Lys	Asn	Leu	Val	Leu	Pro	Leu	Gln	Glu	Glu	Arg	Lys	Gln	Leu		
545					550					555					560		
Arg	Tyr	Arg	Tyr	Cys	Asp	Arg	Glu	Glu	Val	Leu	Ile	Ser	Phe	Phe	Ser		

```

                    565                    570                    575
Leu Leu Leu Val Glu Asp Asp Gln Thr Asn Asp Tyr Thr Leu Leu Pro
                    580                    585                    590
Tyr Leu Met Leu Phe Pro Val Ser Phe Arg Leu Phe Ser Tyr Val Asp
                    595                    600                    605
Glu Val Ile Val Ala Ala Glu Ala Ala Glu His Asp Gly Lys Cys Lys
                    610                    615                    620
Cys Gly Ala Ala Cys Ala Cys Thr Asp Cys Lys Cys Gly Asn Glu Ala
625                    630                    635                    640
Leu Val Ser Leu Pro Leu Asn Asn Lys Ser Leu Gln Cys Ile Lys Asn
                    645                    650                    655
Lys Arg Thr Lys Lys Lys Lys Glu Glu Glu Glu Gly Val Ala Met Tyr
                    660                    665                    670
Ser Asn Asn Ser Gly Arg Leu Ile Gly Cys Lys Met Gly Arg Ser Ile
                    675                    680                    685
Ile Cys Val Ile Ser Val Leu Cys Tyr Asn Ser Pro Ile Tyr Pro Ser
690                    695                    700
Gln Asn Ile Ile Ser Ile Asn Leu Val Val Ser Phe Ile Tyr Ala Ala
705                    710                    715                    720
Ala Ala Ala Ala Ser Ser Phe Thr Asn Gln Pro Lys Gly Ser Ile Ala
                    725                    730                    735
Leu Gly Pro Thr Ser Ser Pro Ile Cys Ser Leu Ser Tyr Asp Glu Thr
                    740                    745                    750
Ala Thr Lys Arg Val Cys
                    755

```

<210> 36
 <211> 762
 <212> PRT
 <213> Musa acuminata

<220>
 <221> VARIANT
 <222> 546
 <223> Xaa = Any Amino Acid

```

<400> 36
Leu Thr Gly Thr Gly Pro Pro Ser Arg Ser Thr Val Ser Ile Ser Phe
 1                    5                    10                    15
Asp Leu Phe Ser Gln Ser Leu Ser Leu Ser Leu Ser Leu Ser Leu Ser
20                    25                    30
Val Cys Leu Ile Trp Leu Cys Ile Ala Met Phe Ile Leu Ala Lys Leu
35                    40                    45
Cys Pro Ser Leu Ser Arg Ile Trp Arg Cys Ser Phe Tyr Lys His Cys
50                    55                    60
Arg Met Arg Ala Asn His Ile Gly Arg Pro Leu Gly His Asp Asp Met
65                    70                    75                    80
Asp Ser Ser Thr Ala Ser Ser His Gly Met Asp Pro His Ser Ser Val
85                    90                    95
Asp Lys Gly Ser Pro Gln His Ala Val Val Val Pro Val Lys Ile Glu
100                    105                    110
Arg Ser Gly Asp Ser Asp Asp Arg Leu Phe Arg Ala Gln Arg Arg Pro
115                    120                    125
Ala Pro Ala Ile Ser Val Pro Tyr Arg Arg Val Gly Ile Asn Gly Phe
130                    135                    140
Val Val Ala Leu Phe Leu Ala Gly Ile Asn Lys Pro Cys Lys Leu Leu
145                    150                    155                    160
Phe Leu Phe Pro Tyr Ile Lys Pro Ser Ser Cys Tyr Ile Lys Ile Ala

```


Ala Thr Glu Lys His Leu Cys His Tyr His Ile Lys Val Cys Asn Ala
 645 650 655
 Lys Thr Lys Glu Gln Lys Lys Lys Arg Lys Lys Lys Lys Val Trp Leu
 660 665 670
 Cys Thr Leu Ile Ile Arg Ala Gly Val Val Arg Trp Asp Asn Ala Val
 675 680 685
 Ser Ser Val Leu Ser Leu Ser Cys Val Thr Thr Leu Leu Ser Ile Leu
 690 695 700
 Val Asn Glu Ile Leu Leu Val Leu Ile Trp Leu Cys His Ser Tyr Met
 705 710 715 720
 Leu Leu Leu Leu Leu Leu Pro Leu Ser Pro Ile Asn Pro Lys Asp Arg
 725 730 735
 Leu His Cys Lys Ala Gln Leu Pro His Arg Tyr Ala Arg Ser Val Thr
 740 745 750
 Met Asn Glu Gln Gln Pro Asn Glu Ser Ala
 755 760

<210> 37
 <211> 1880
 <212> DNA
 <213> Musa acuminata

<220>
 <221> misc_feature
 <222> 1721, 1782, 1788, 1799
 <223> n = A,T,C or G

<400> 37
 tcaactggtac ggggcccccc tcgaggtcga cggtatcgat aagctttgat ctcttctctc 60
 aatctctctc tctctctctc tctctctctc tctctgtatg tctttaaata tggttgtaat 120
 gctgaattgc tatgtttatc ttggccaaac tgtgtccatc tttgagcaga taaatctggc 180
 gataatgttc tttttactga aagcactgca ggatgagggc ctgaaatcac atcggacgcc 240
 cactgggtca tgatgatatg gactcctcca cagcgagcag ccatgggatg tgagatccac 300
 atagcagcgt agataaggga agcccgaac actaggctgt tgttgttcca gtaaagatcg 360
 aaaggtcagg cgacagtgc gatcgacttt ttcgagcatg atgacaacga cgacctgctc 420
 ctgcaatata cgtcccctac cgtagagtgg gaataaatgg gttttagtgg gcaactattc 480
 tcgcaggaat taattgaaag ccctgcaaat tgctgtttct ctttccttat attaaacctt 540
 cctcctgtta cattaataatt gcatgttaag acatttctgt atggatccga acatgagatc 600
 tatcattgaa gtaattgggtg ggatttacat tatcatcatc atcatcatct ccatgggttt 660
 ggatctaatt agaccgaaaa cctcatttaa aatccaaccc caatattggc ttgacttgct 720
 ccatctccaa gaaaaataca acaagaacaa caaaaattta ggatgcacat tgaattgatt 780
 tggtcactat gagagaatca tggattaaaa atattaaaa aaaaaataaa tcataatcat 840
 ctactcactc taacgattca cattctatcc accaaatttg acatcggctt ctaattaatt 900
 tcatatatta gggttctaaaa aatctctccc tttgacagat gaataaatat ttcttttaat 960
 tcgttagggg aggatctaatt ataatatata tatatatata tattttattta ttagattcta 1020
 accatttctc tcaccagaat atgaatcgac ggccatatct gcaaaaaccc accaattggt 1080
 cacagtaaac gctcattgaa ttaaggtcga aattactttt aaatttctag agatttccaa 1140
 taaaatatac tcgtatcttt tacagtgatg atgctccgga tgataagatg gaaggatgcg 1200
 tgtgtcagcc gcctgcgatc tctgtggcgg ggacgagacg aagacaagga cgtgagcgga 1260
 cgataccaag tcttctcctc ccccaccacg cacgtctcag attcccgata cggcctatcc 1320
 cgggtggcgtg tggactgcac agacgaacga gtaaatgcc atccccctc ttctattctt 1380
 tctctttgag tgtgtgagag gagcgcttat aaataagcac gaaacaagcc ccttttctct 1440
 ccaagaacac accacaccat tcacacacta catcctctgc ttcttcgagc cttttcgctt 1500
 tccttcctcg tctaaccatg tcgacctgcg gcaactgcga ctgcgttgac aagagccagt 1560
 gcgtgtaagt catcctccat ccctccacct cttcttcttc ttcttcttct tcttcttcta 1620
 acctcgcccc gtttgtgttt gatgagtcga ctcttcccac atcgctcgtc aaaactcaga 1680
 gctttattag ggaacatcag caatactata tgtatatgta naaggtcaac gttggctgaa 1740
 gaacttggtt ttgcctttgc aggaagaaag gaaacagcta cngtatcnat attgttgana 1800

ccgagaagag gtactgatta gcttcttctc cctcctcctc gtcgaggatg atcaaactaa 1860
ttaggattac accttattac 1880

<210> 38

<211> 1878

<212> DNA

<213> Musa acuminata

<220>

<221> misc_feature

<222> 1720, 1768, 1781, 1787, 1798, 1807, 1820, 1845, 1869

<223> n = A,T,C or G

<400> 38

```

agtgaccatg ccccgggggg agctccagct gccatagcta ttcgaaacta gagaagagag 60
ttagagagag agagagagag agagagagag agagacatac tgaaatttat accaacatta 120
cgacttaacg atacaaatag aaccggtttg acacaggtag aaactcgtct atttagaccg 180
ctattacaag aaaaatgact ttcgtgacgt cctactcccg gacttttagtg tagcctgcgg 240
gtgacccagt actactatac ctgaggaggt gtcgctcgtc ggtaccctac actctagggtg 300
tatcgtcgca tctattccct tcgggcgttg tgatccgaca acaacaaggt catttctagc 360
tttccagtcg gctgtcactg ctagctgaaa aagctcgtac tactgttgct gctggacgag 420
gacgttatag gcaggggatg gcatctcacc cttatttacc caaacatcaa cgtgataaag 480
agcgtccctta attaaccttc gggacgttta acgacaaaga gaaaggaata taatttggaa 540
ggaggacaat gtaattttta cgtacaattc tgtaaagaca tacctaggct tgtactctag 600
atagtaactt cattacccat cctaaatgta atagtagtag tagtagtaga ggtacccaaa 660
cctagattaa tctggccttt ggagtaaatt tttttaaatc ctacgtgtaa cttaactaaa 720
gtagagggttc tttttatgtt gttcttgttg ttaggttggg ttataaccga actgaacgag 780
ccagtatac tctcttagtg cctaattttt ataattttat tttttattta gtattagtag 840
atgagtgaga ttgctaagtg taagataggt ggtttaaact gtagccgaag attaatataa 900
gtatataatc caagattttt tagagaggga aactgtctac ttatttataa agaaaattaa 960
gcaatccctt cctagattat attatatata tatatatata taaataaata atctaagatt 1020
ggtaaagaga gtggtcttat acttagctgc cggtatagac gtttttgggt ggtaacaag 1080
tgtcatttgc gagtaactta tctccagctt taatgaaaat ttaaagatct ctaaagggtta 1140
ttttatatga gcatagaaaa tgtcactact acgaggccta ctattctacc ttctacgca 1200
cacagtcggc ggacgctaga gacaccgccc ctgctctgct tctgttcctg cactcgctg 1260
ctatggttca gaagaggagg ggggtggtgcg tgcagagtct aagggtatg ccgatatagg 1320
ccaccgcaca cctgacgtgt ctgcttgctc atttacgggt aggggggaga aagtaagaaa 1380
gagaaacgca cacactctcc tcgcggatat ttattcgtgc tttgttcggg gaaaagagag 1440
gttcttgtgt ggtgtggtaa gtgtgtgatg taggagacga agaagctcgg aaaagcggaa 1500
ggaaggagca gattggtaca gctggacgcc gttgacgctg acgcaactgt tctcggtcac 1560
gcacattcag taggaggtag ggaggtggag aagaagaaga agaagaagaa gaagaagatt 1620
ggagcggggc aaacacaaac tactcagctg agaagggtgt agcagagcagt tttgagtctc 1680
gaaataatcc cttgtagtcg ttatgatata catatacatn ttccagttgc aaccgacttc 1740
ttgaacccaa acggaaacgt ccttcttncc tttgtcgatg ncatagntat aacaactntg 1800
gcttttntcc atgactaatn gaagaagagg gaggaggagc agctntacta gtttgattaa 1860
tcctaattgng gaataatg 1878

```

<210> 39

<211> 597

<212> PRT

<213> Musa acuminata

<220>

<221> VARIANT

<222> 546, 562, 572, 575, 579, 588, 594

<223> Xaa = Any Amino Acid

<400> 39

Ser Leu Val Arg Gly Pro Pro Arg Gly Arg Arg Tyr Arg Ala Leu Ile

1	5	10	15
Ser Ser Leu Asn Leu Ser Leu Ser Leu Ser Leu Ser Leu Ser Leu Tyr			
	20	25	30
Phe Lys Tyr Gly Cys Asn Ala Glu Leu Leu Cys Leu Ser Trp Pro Asn			
	35	40	45
Cys Val His Leu Ala Asp Lys Ser Gly Asp Asn Val Leu Phe Thr Glu			
	50	55	60
Ser Thr Ala Gly Gly Pro Glu Ile Thr Ser Asp Ala His Trp Val Met			
65	70	75	80
Met Ile Trp Thr Pro Gln Arg Ala Ala Met Gly Cys Glu Ile His			
	85	90	95
Ala Ala Ile Arg Glu Ala Arg Asn Thr Arg Leu Leu Leu Phe Gln Arg			
	100	105	110
Ser Lys Gly Gln Ala Thr Val Thr Ile Asp Phe Phe Glu His Asp Asp			
	115	120	125
Asn Asp Asp Leu Leu Leu Gln Tyr Pro Ser Pro Thr Val Glu Trp Glu			
	130	135	140
Met Gly Leu Leu His Tyr Phe Ser Gln Glu Leu Ile Glu Ser Pro Ala			
145	150	155	160
Asn Cys Cys Phe Ser Phe Leu Ile Leu Asn Leu Pro Pro Val Thr Leu			
	165	170	175
Lys Leu His Val Lys Thr Phe Leu Tyr Gly Ser Glu His Glu Ile Tyr			
	180	185	190
His Ser Asn Gly Asp Leu His Tyr His His His His His Leu His Gly			
	195	200	205
Phe Gly Ser Asn Thr Glu Asn Leu Ile Asn Pro Thr Ile Leu Ala Leu			
	210	215	220
Ala Pro Ser Pro Arg Lys Ile Gln Gln Glu Gln Gln Lys Phe Arg Met			
225	230	235	240
His Ile Glu Leu Ile Trp Ser Leu Glu Asn His Gly Leu Lys Ile Leu			
	245	250	255
Lys Lys Ile Asn His Asn His Leu Leu Thr Leu Thr Ile His Ile Leu			
	260	265	270
Ser Thr Lys Phe Asp Ile Gly Phe Leu Ile Ser Tyr Ile Arg Phe Lys			
	275	280	285
Ile Ser Pro Phe Asp Arg Ile Asn Ile Ser Phe Asn Ser Leu Gly Lys			
	290	295	300
Asp Leu Ile Tyr Ile Tyr Ile Tyr Ile Phe Ile Tyr Ile Leu Thr Ile			
305	310	315	320
Ser Leu Thr Arg Ile Ile Asp Gly His Ile Cys Lys Asn Pro Pro Ile			
	325	330	335
Val His Ser Lys Arg Ser Leu Asn Gly Arg Asn Tyr Phe Ile Ser Arg			
	340	345	350
Asp Phe Gln Asn Ile Leu Val Ser Phe Thr Val Met Met Leu Arg Met			
	355	360	365
Ile Arg Trp Lys Asp Ala Cys Val Ser Arg Leu Arg Ser Leu Trp Arg			
	370	375	380
Gly Arg Asp Glu Asp Lys Asp Val Ser Gly Arg Tyr Gln Val Phe Ser			
385	390	395	400
Ser Pro Thr Thr His Val Ser Asp Ser Arg Tyr Gly Leu Ser Arg Trp			
	405	410	415
Arg Val Asp Cys Thr Asp Glu Arg Val Asn Ala His Pro Pro Ser Phe			
	420	425	430
Ile Leu Ser Leu Cys Val Cys Glu Arg Ser Ala Tyr Lys Ala Arg Asn			
	435	440	445
Lys Pro Leu Phe Ser Pro Arg Thr His His Thr Ile His Thr Leu His			
	450	455	460
Pro Leu Leu Leu Arg Ala Phe Ser Pro Ser Phe Leu Val Pro Cys Arg			
465	470	475	480

[illegible]

```
<210> 40
<211> 590
<212> PRT
<213> Musa acuminata
```

```
<220>  
<221> VARIANT  
<222> 540, 556, 560, 562, 565, 568, 572, 580, 588  
<223> Xaa = Any Amino Acid
```

<400>	40															
His 1	Trp	Tyr	Gly	Ala 5	Pro	Leu	Glu	Val	Asp 10	Gly	Ile	Asp	Lys 15	Leu	Ser	
Leu	Leu	Ser	Ile 20	Ser	Leu	Ser	Leu	Ser 25	Leu	Ser	Leu	Ser 30	Leu	Cys	Met	
Ser	Leu	Asn 35	Met	Val	Val	Met	Leu 40	Asn	Cys	Tyr	Val 45	Tyr	Leu	Gly	Gln	
Thr	Val 50	Ser	Ile	Phe	Glu	Gln 55	Ile	Asn	Leu	Ala	Ile 60	Met	Phe	Phe	Leu	
Leu 65	Lys	Ala	Leu	Gln	Asp 70	Glu	Gly	Leu	Lys	Ser 75	His	Arg	Thr	Pro	Thr 80	
Gly	Ser	Tyr	Gly	Leu 85	Leu	His	Ser	Glu	Gln 90	Pro	Trp	Asp	Val	Arg 95	Ser	
Thr	Gln	Arg	Arg 100	Gly	Lys	Pro	Ala	Thr 105	Leu	Gly	Cys	Cys	Cys 110	Ser	Ser	
Lys	Asp	Arg 115	Lys	Val	Arg	Arg	Gln 120	Arg	Ser	Thr	Phe	Ser 125	Ser	Met	Met	
Thr 130	Thr	Thr	Thr	Cys 135	Ser	Cys	Asn	Ile	Arg	Pro	Leu 140	Pro	Ser	Gly	Asn	
Lys 145	Trp	Val	Cys	Ser 150	Cys	Thr	Ile	Ser	Arg	Arg 155	Asn	Leu	Lys	Ala	Leu 160	
Gln	Ile	Ala	Val 165	Ser	Leu	Ser	Leu	Tyr	Thr 170	Phe	Leu	Leu	Leu 175	His	Asn	
Cys	Met	Leu	Arg 180	His	Phe	Cys	Met	Asp 185	Pro	Asn	Met	Arg	Ser 190	Ile	Ile	
Glu	Val 195	Met	Gly	Arg	Ile	Tyr	Ile 200	Ile	Ile	Ile	Ile 205	Ile	Ile	Ser	Met	
Gly	Leu 210	Asp	Leu	Ile	Arg	Pro 215	Lys	Thr	Ser	Phe	Lys 220	Ile	Gln	Pro	Tyr	
Trp 225	Leu	Asp	Leu	Leu 230	His	Leu	Gln	Glu	Lys	Tyr 235	Asn	Lys	Asn	Asn	Lys 240	

Asn Leu Gly Cys Thr Leu Asn Phe Gly His Tyr Glu Arg Ile Asp Lys
 245 250 255
 Tyr Asn Lys Lys Ile Ile Ile Ile Tyr Ser Leu Arg Phe Thr Phe Tyr
 260 265 270
 Pro Pro Asn Leu Thr Ser Ala Ser Asn Phe His Ile Leu Gly Ser Lys
 275 280 285
 Lys Ser Leu Pro Leu Thr Asp Glu Ile Phe Leu Leu Ile Arg Gly Arg
 290 300
 Ile Tyr Asn Ile Tyr Ile Tyr Ile Tyr Leu Phe Ile Arg Phe Pro Phe
 305 310 315 320
 Leu Ser Pro Glu Tyr Glu Ser Thr Ala Ile Ser Ala Lys Thr His Gln
 325 330 335
 Leu Phe Thr Val Asn Ala His Ile Lys Val Glu Ile Thr Phe Lys Phe
 340 345 350
 Leu Glu Ile Ser Asn Lys Ile Tyr Ser Tyr Leu Leu Gln Cys Ser Gly
 355 360 365
 Asp Gly Arg Met Arg Val Ser Ala Ala Cys Asp Leu Cys Gly Gly Asp
 370 375 380
 Glu Thr Lys Thr Arg Thr Ala Asp Asp Thr Lys Ser Ser Pro Pro Pro
 385 390 395 400
 Pro Arg Thr Ser Gln Ile Pro Asp Thr Ala Tyr Pro Gly Gly Val Trp
 405 410 415
 Thr Ala Gln Thr Asn Glu Met Pro Ile Pro Pro Leu Ser Phe Phe Leu
 420 425 430
 Phe Ala Cys Val Arg Gly Ala Pro Ile Asn Lys His Glu Thr Ser Pro
 435 440 445
 Phe Ser Leu Gln Glu His Thr Thr Pro Phe Thr His Tyr Ile Leu Cys
 450 455 460
 Phe Phe Glu Pro Phe Arg Leu Pro Ser Ser Ser Asn His Val Asp Leu
 465 470 475 480
 Arg Gln Leu Arg Leu Arg Gln Glu Pro Val Arg Val Ser His Pro Pro
 485 490 495
 Ser Leu His Leu Phe Phe Phe Phe Phe Phe Phe Pro Arg Pro
 500 505 510
 Val Cys Val Val Asp Ser Ser His Ile Arg Ala Gln Asn Ser Glu Leu
 515 520 525
 Tyr Gly Thr Ser Ala Ile Leu Tyr Val Tyr Val Xaa Gly Gln Arg Trp
 530 535 540
 Leu Lys Asn Leu Val Leu Pro Leu Gln Glu Glu Xaa Lys Gln Leu Xaa
 545 550 555 560
 Tyr Xaa Tyr Cys Xaa Arg Lys Xaa Val Leu Ile Xaa Phe Phe Ser Leu
 565 570 575
 Leu Leu Val Xaa Asp Asp Gln Thr Asn Asp Tyr Xaa Leu Leu
 580 585 590

<210> 41
 <211> 441
 <212> PRT
 <213> Musa acuminata

<400> 41
 Thr Gly Thr Gly Pro Pro Ser Arg Ser Thr Val Ser Ile Ser Phe Asp
 1 5 10 15
 Leu Phe Ser Gln Ser Leu Ser Leu Ser Leu Ser Leu Ser Val
 20 25 30
 Cys Leu Ile Trp Leu Cys Ile Ala Met Phe Ile Leu Ala Lys Leu Cys
 35 40 45
 Pro Ser Leu Ser Arg Ile Trp Arg Cys Ser Phe Tyr Lys His Cys Arg

```

      50      55      60
Met Arg Ala Asn His Ile Gly Arg Pro Leu Gly His Asp Asp Met Asp
65      70      75      80
Ser Ser Thr Ala Ser His Gly Met Asp Pro His Ser Ser Val Asp
      85      90      95
Lys Gly Ser Pro Gln His Ala Val Val Val Pro Val Lys Ile Glu Arg
      100      105      110
Ser Gly Asp Ser Asp Asp Arg Leu Phe Arg Ala Gln Arg Arg Pro Ala
      115      120      125
Pro Ala Ile Ser Val Pro Tyr Arg Arg Val Gly Ile Asn Gly Phe Val
      130      135      140
Val Ala Leu Phe Leu Ala Gly Ile Asn Lys Pro Cys Lys Leu Leu Phe
145      150      155      160
Leu Phe Pro Tyr Ile Lys Pro Ser Ser Cys Tyr Ile Lys Ile Ala Cys
      165      170      175
Asp Ile Ser Val Ser Trp Ile Arg Thr Asp Leu Ser Leu Lys Trp Val
      180      185      190
Gly Phe Thr Leu Ser Ser Ser Ser Ser Ser Pro Trp Val Trp Ile Leu
      195      200      205
Asp Arg Lys Pro His Leu Lys Ser Asn Pro Asn Ile Gly Leu Thr Cys
      210      215      220
Ser Ile Ser Lys Lys Asn Thr Thr Arg Thr Thr Lys Ile Asp Ala His
225      230      235      240
Ile Asp Leu Val Thr Met Arg Glu Ser Trp Ile Lys Asn Ile Lys Ile
      245      250      255
Lys Asn Lys Ser Ser Ser Thr His Ser Asn Asp Ser His Ser Ile His
      260      265      270
Gln Ile His Arg Leu Leu Ile Asn Phe Ile Tyr Val Leu Lys Asn Leu
      275      280      285
Ser Leu Gln Met Asn Lys Tyr Phe Phe Phe Val Arg Glu Gly Ser Asn
      290      295      300
Ile Ile Tyr Ile Tyr Ile Tyr Leu Arg Ser Lys Leu Leu Leu Asn Phe
305      310      315      320
Arg Phe Pro Ile Lys Tyr Thr Arg Ile Phe Tyr Ser Asp Asp Ala Pro
      325      330      335
Asp Asp Lys Met Glu Gly Cys Val Cys Gln Pro Pro Ala Ile Ser Val
      340      345      350
Ala Gly Thr Arg Arg Arg Gln Gly Arg Glu Arg Thr Ile Pro Ser Leu
      355      360      365
Leu Leu Pro His His Ala Arg Leu Arg Phe Pro Ile Arg Pro Ile Pro
      370      375      380
Val Ala Cys Gly Leu His Arg Arg Thr Ser Lys Cys Pro Ser Pro Leu
385      390      395      400
Phe His Ser Phe Ser Leu Arg Val Glu Glu Arg Leu Ile Ser Thr Lys
      405      410      415
Gln Ala Pro Phe Leu Ser Lys Asn Thr Pro His His Ser His Thr Thr
      420      425      430
Ser Ser Ala Ser Ser Ser Leu Phe Ala
      435      440

```

<210> 42

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 42

gatcgccatg gtgaatg

17

<210> 43

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 43

gtaaaacgac ggccagt

17

<210> 44

<211> 2156

<212> DNA

<213> Musa acuminata

<220>

<221> misc_feature

<222> 879

<223> n = A,T,C or G

<400> 44

```

ggatcccaac ttttaggaat ggatcttaaa atttttagtta taagttcaaa gttagaaaaa 60
tctttaccaa gagctttgag tccattgatg acatccgtga aacggtgtac atgtctccga 120
tggaactcact tggtttcatt cggaaaagtt cgaaagagtg cataagaata ttgattttgg 180
attctttcac tcggtttggtg ccttcatgag tgacctcaag agtcctccaa atatcaaaag 240
ccgaatcaca aattgaaatg tgattgaatt catttttgtc taatgcacaa aacagggcat 300
tcatagcctt tgtgtttaa gcaaaaacat tcttctccga ttcattcccat tcgctcatcg 360
gaagagaaaa tttttgaaat ccatttttoga caatagacca aagctcgaaa tccatggaaa 420
tgaggaagat cctcatatga gttttccaat acatgtaatt cgactcatta aacatagggtg 480
gatgtgtaat gaaatgaccc tcatgcscta tctctcttgg gtattaaacc aaatatgaga 540
gtgagccttg ctctgatacc aattgttagg atcagagtgg cactaagaga gggggggagt 600
gaattagtgc agtggattaa aacttataag tttaaaaatg aattcgtaaa tacgagaaga 660
tttcgtttta atagtaactt gagtagatga aaaccaaag ttaacagtag tgtaaataac 720
aatttcggga aagtaagaac tcacacattc aaggaacata ccaattttaa gtggttcggt 780
caaaatgacc tacatccact tgtgaagcct tcttcgaaga ggctcccaac ttccactagc 840
aaatcacttt gaaggggaag gacaaatacc tctcttacna cctttttaca tgggttcatac 900
tcttacaat tttcaacgag aaagaaggag gtgaacatgc aagcaattga aaacaagact 960
tgctaaagac tttgctaagg ctttttttct caatctattg cttctcaaaa gttgtattct 1020
ctgctgagaa ttgaggggta tttatagacc ccaagaggat tttaaatttg gctccaaatt 1080
tcgaatgctc ttgggttccc gaggttgccg gtgccaccgc ctgtcagtggt ttgacactgg 1140
acagtgtact agcgggtgcca ccgcccgaac tctcgggtgt tgggcgggtgc caccgcctag 1200
actttttcag ctactgggtt ggattccaaa cttgacccaa accagtccga actcgggtcc 1260
aattgaccgg taaccggatt ataggattaa cccttaatcc taaccctaatt tatatgcaa 1320
ctacgcaact gaaaatatag tcctaagcaa gtttttaacc ggcaaacgtc gagtcttctt 1380
ccggcgatct ttcggcagac ttctgatata ccttttgatt tcttctagcg gactcctagt 1440
agggtcccga tcttgtggcg agtttagcga gtagccgaac cttctcggtg atctccgcaa 1500
accgccgatg atctcttcgg cagacttttcg aaaacttcga caagtccccg atttcttctc 1560
ggttggttcc gacagcatct ctaacgaaac ttcggactcc ttgaatgtcc atcgaaactg 1620
actccggtag gcttgcttta tattttcagg ctatcatagt taatcctaca tacttaactc 1680
aataatatgg attagattaa ttaacccatc aattgatttc atcatcaaaa ttcgacattc 1740
aacaacatc cgtactcaat aacccatcag gctatagtta cgtgactatc tactgtgatc 1800
cgtacgtgaa gttagcgagt catgatccag gtcgtgtcac ttattggccg aacacgtatc 1860
ccttatccaa atccagtcct ctcaactcct ctagcctacc cgtctctttt tttattactt 1920
ttgaaagaat tcaaatcaaa acagatacaa aataacacgg tgagacactg tgacatgcta 1980
gtctctggaa agcattaatt cgcgcattcca cagacgtcgt cagcttcata acccactttt 2040

```

tcctacatac catgtcgcac ggctttgttg atgacagacc accacaagct tgccttttgg 2100
 tgtgcctaac agagagagag agagagacag accgatagcc tcctcattca ctatgg 2156

<210> 45

<211> 2160

<212> DNA

<213> Musa acuminata

<220>

<221> misc_feature

<222> 883

<223> n = A,T,C or G

<400> 45

```

ggatcccaac ttttaggaat ggatcttaaa attttagtta taagttcaaa gttagaaaaa 60
tctttaccaag gagctttgag tccattgatg acatccgtga aacggtgtac atgtctccga 120
tggaactcact tgggtttcatt cggaaaagtt cgaaagagtg cataagaata ttgatttttg 180
attctttcac tcggttggtg ccttcattgag tgacctcaag agtcctccaa atatcaaaag 240
ccgaatcaca aattgaaatg tgattgaatt catTTTTgtc taatgcacaa aacaggggcat 300
tcatagcctt tgtgttttaa gcaaaaacat tcttctccga ttcattcccat tcgctcatcg 360
gaagagaaaa tttttgaaat ccatttttca caatagacca aagctcgaaa tccatgcatg 420
gaaatgagga agatcctcat atgagttttc caatacatgt aattcgactc attaaacata 480
ggtggatgtg taatgaaatg accctcatgc sctatctctc ttgggtatta aaccaaata 540
gagagtgage cttgctctga taccaattgt taggatcaga gtggcactaa gagagggggg 600
gagtgaatta gtgcagtga ttaaaactta taagttaa aatgaattcg taaatcacgag 660
aagatttcgt tttaatagta acttgagtag atgaaaacca aaagttaaca gtagtgtaaa 720
taacaatttc gggaaagtaa gaactcacac attcaaggaa cataccaatt taaagtgggt 780
cggtaaaaat gacctacatc cacttgtaga gccttcttcg aagaggctcc caacttccac 840
tagcaaatca ctttgaaggg gaaggacaaa tacctctctt acnacctttt acaatgggtc 900
atactcttac aaattttcaa cgagaaagaa ggaggtgaac atgcaagcaa ttgaaaacaa 960
gacttgctaa agactttgct aaggcttttt ttctcaatct attgcttctc aaaagtgtga 1020
ttctctgctg agaattgagg ggtatttata gaccccaaga ggatttaaatt ttgggctcca 1080
aatttcgaat gctcttgggt tcccagaggt gccggtgcca ccgctgtca gtgtttgaca 1140
ctggacagtg tactagcggg gccaccgccg gactctctcg gtgttggcg gtgccaccgc 1200
ctagactttt tcagctcact ggttgattc caaacttgac ccaaaccagt ccgaactcgg 1260
gtccaattga ccgtaaccg gattatagga ttaaccctta atcctaacc taattatatg 1320
caaactacgc aactgaaaat atagtcctaa gcaagttttt aaccggcaaa cgtcgagtct 1380
tcttcggcg atctttcggc agacttctga tatacctttg gatttcttct agcggactcc 1440
tagtaggtc ccgatcttgt ggcgagttta ggcagtagcc gaaccttctc ggtgatctcc 1500
gcaaacgcc gatgatctct tcggcagact ttcgaaaact tcgacaagtc cccgatttct 1560
tctcggttg ttccgacagc atctctaacg aaacttcgga ctcttgaat gtccatcgaa 1620
cttgactccg gtaggcttgc tttatatttt caggctatca tagttaatcc tacatactta 1680
actcaataat atggattaga ttaattaacc catcaattga tttcatcatc aaaattcgac 1740
attcaacaaa catccgtact caataaccca tcaggctata gttacgtgac tatctactgt 1800
gatccgtacg tgaagtttagc gagtcatgat ccaggctgtg tcaacttattg gccgaacacg 1860
tatcccttat ccaaattccag tcttctcaac tcttctagcc taccgtctc tttttttatt 1920
acttttgaaa gaattcaaat caaaacagat acaaaataac acggtgagac actgtgacat 1980
gctagtctct ggaaagcatt aattcgcgca tccacagacg tcgtcagctt catcaccac 2040
tttttctac ataccatgtc gcatggcttt gttgatgaca gaccaccaca agcttgctt 2100
tggttgtgcc taacagagag agagagagag acagaccgat agcctctca ttcaccatgg 2160

```